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THE UNIVERSITY OF ALBERTA

EFFECTS OF RELATIONSHIPS WITHIN THE STUDENT TEACHING DYAD ON PUPIL ACHIEVEMENT

by

(C)

RAYMOND GEORGE PRESTON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

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FALL, 1975

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "Effects of Relationships within the Student Teaching Dyad on Pupil Achievement" submitted by Raymond George Preston in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Date 15 July 1975

ABSTRACT

The specific purposes of the present study were (a) to describe the relationships within different types of student teaching dyads; (b) to discover whether student teacher performance can be related to the level of pupil achievement; and (c) to examine the relationship between student teacher performance as reflected in pupil achievement and the particular nature of the student teaching dyad.

Forty two student teaching dyads comprising a co-operating teacher and the student teacher assigned to that class were issued with kits of instructions which detailed their respective roles . Student teachers were required to use the materials in their kit to prepare for and teach one thirty minute lesson on metric linear measurement units to the co-operating teacher's pupils. Co-operating teachers collected pre- and post-test data regarding the pupils' achievement in metrics knowledge whilst both co-operating teacher and student teacher provided information of their relationship with each other. Additional information obtained by the co-operating teacher's observation of the lesson, and demographic data about the student teachers and their perceptions of the study were used in the statistical analyses.

No significant correlations among the student teacher's performance as equated with pupil achievement on the metrics lesson were found with (a) the valence formed by the ratings which each member of the student teaching dyad had for each other, or (b) the rating of the co-operating teacher for his student teacher, or (c) the rating of the student teacher for his co-operating teacher, or (d) the balance within the dyad.

Correlational analyses using questionnaire responses and demographic data revealed a substantial pattern of high correlations existing for student teachers associated with classes achieving consistently high raw gain scores. For this group of student teachers high correlations were found between the co-operating teacher's perception of the student teacher, the student teacher's perception of the co-operating teacher, the student teacher's conviction of his suitability, and confidence as a teacher, and the quality of pupil achievement. The group of student teachers associated with consistently low pupil achievement did not exhibit this pattern of correlations.

Two further patterns of correlations suggested (a) that different conceptual bases may have been used by co-operating teachers when observing their student teacher's

lesson, and (b) that student teachers involved in the study exhibited degrees of self-other orientation which may be related to their effectiveness as a teacher.

The study was an endeavour to determine how important the relationships between members of a student teaching dyad are to the achievement of the pupils in the class. The findings suggested that the quality of the relationship within the dyad is associated with the perceptions the co-operating teacher has of the student teacher; the level of self-confidence characteristic of the student teacher; and, the level of class achievement attributable to the student teacher.

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CHAPTER 1

THE PROBLEM AND THE NATURE OF THE INVESTIGATION

Background to the study

Practice teaching is a critical component of teacher education pre-service programs, an essential link between the University and the schools, enabling student teachers to complete pre-service training and fulfil the requirements of certification. According to Conant (1963) the one indisputably essential element in professional education is practice teaching.

Peck and Tucker (1973) on the basis of research on practice teaching during the period 1959-69 concluded:

> ... there is ample and impressive testimony that student teaching tends to be the most practical and useful part of pre-service education in the minds of prospective teachers (p.967).

Given this general consensus about the role and significance of practice teaching, it is surprising that the practice teaching experience has not received systematic study. Sarason, Davidson and Blatt (1962) concluded,

> ...no problem area in education is as unstudied

> and as important as the practice-teaching period. What are desperately needed are studies which have as their aims a detailed description of what goes on between neophyte and supervisor (p.116).

Although there is widespread agreement that supervised classroom practice is essential for prospective teachers, Denemark and MacDonald (1967) reported that there had been almost no research to find out how, why or what specific kinds of practice actually do have demonstrably good effects. It has been acknowledged that the practice teaching situation is a complex one (Peck and Tucker, 1973; Michaelis, 1960) thus making systematic study difficult. Many factors are involved which interact simultaneously: the pupils' aptitudes, interests, readiness and attitudes toward learning; their parents' attitudes toward schooling; the administrative policies and the interpersonal organization of the schools; similar characteristics of the teacher-training institutions; the personal characteristics of the teachers, student teachers, and supervising staff. To account for these factors has presented design and analysis problems which have been difficult to overcome.

Rosenshine and Martin(1974) have criticized the current research in teacher education, stating:

> a) The research focuses upon well-covered areas (such as teacher training and teacher beliefs) and neglects other areas such as teacher behavior and student outcomes or the methodology of research in this area.

b) The research is repetitive but noncumulative.
c) There is a lack of integration of previous research(p.12).

Moreover, they have recommended that there be an increase in research which examines the effects of training (of student teachers) on instructional outcomes.

THE PROBLEM

The difficulty in identifying 'good teaching' confuses the issue of what it is that influences student teachers to perform well in a practice situation. Mitzel(1960) claimed there is a personal dimension to a good teacher. This is thought to involve the personal characteristics of the teacher, his personality attributes, his knowledge, achievements, intelligence, status and appearance. Mitzel has termed these "presage" factors. More specifically Soloman, Rosenberg and Bezdeck(1964) reported the effectiveness of teachers is significantly related to teacher expressiveness and warmth. This may have implications for the opportunities provided during teacher education programs for interpersonal interaction between co-operating teachers and student teachers. Increased demand for extended student teaching experiences, and the need for teacher education institutions to ensure that extended interaction with schools can be maintained as a regular feature of professional preparation programs, require a

clearer definition of the influence of the interaction among the school and student personnel and its relationship to pupil outcomes.

The value of the relationships among the personnel in the student teaching situation has long been acknowledged to be important. In 1952 Barr noted that:

> Teacher effectiveness may be essentially a relationship between (sic) teachers, pupils, and the other persons concerned with the educational undertaking, all affected by limiting and facilitating aspects of the immediate situation (p.172).

The nature of student teaching experiences is affected to a large degree by the attitudes and relationships within the co-operating teacher/student teacher dyads. Changes in attitudes of student teachers during practice experiences relative to the attitudes held by co-operating teachers have been investigated(Price,1967: Bills,1964). The influence of co-operating teachers on student teachers' attitudes toward pupils has been reported (Yee,1968). Yee (1967) also noted that little attention has been given to the identification of factors which significantly determine the nature of outcomes in student-teaching experiences.

> Not knowing for sure what really matters in student teaching, very little empirical research has been conducted to explain how student teaching significantly affects the student teacher and his professional work. Until much greater knowledge

> concerning what variables really matter and how they affect behavior is sought and found, systematic improvements in student-teaching programs will be unlikely (p.108).

In a study on the interaction among the members of 124 student teaching triads, Yee (1968) noted the need to consider the individual characteristics and behavior of triad members, consisting of the co-operating teacher, the faculty consultant, and especially the student for whom the triad is established.

Although one could agree with this observation an important question remains. To date, no studies have been cited which have examined the relationship between pupil achievement and the quality of the relationship between the co-operating teacher and the student teacher. Given that a relationship exists, how important is this relationship in terms of the pupil achievements?

TEACHER EFFECTIVENESS

The difficulties associated with determining an index of teacher effectiveness are legend. Mitzel (1960); Biddle and Ellena (1964); Ellena, Stevenson and Webb (1961); and Smith (1971) noting the complexity of the task, observed there are

> ...few if any well-developed designs for

> evaluation in terms of the classroom behavior and the learning engendered by the teacher in the public school student (p.65).

This has been supported by Popham (1971a) who noted that since the turn of the century literally hundreds of investigations have focussed on the question of teacher competence assessment and most of them have produced little, if any, significant progress. He continued:

> Only recently have many educators come to accept the proposition that there are diverse instructional means which can be used to bring about a single instructional end. Teacher effectiveness research based on this assumption will tend to focus on the results achieved by instructors, not merely the means they employ (p.105).

Despite the problems of determining teacher effectiveness (Rabinowitz & Travers,1953), there is support that important and useful research in education (should) be done in close touch with reality (Howe, 1973). The judging of effectiveness by the effects on pupils has been advocated by Rose (1964); and Saadeh (1970) who stated:

> No definition of the teaching act can assume that the test of its effectiveness does not lie in its accomplishment of the goals of education in terms of pupil outcomes ... will anyone hire a so called teacher who exhibits the teaching behavior in the class but who has no effect on his pupils? (p.74).

Although attitude is an important variable in learning, Trent and Cohen (1973) report that no instruments

have been developed which adequately measure it in relation to a specific learning experience.

Peck and Tucker (1973) reported an accelerating trend toward linking teacher education to its consequences in the cognitive, affective or behavioral learning of the teachers' pupils.

> Studying such linkages is not just an academic exercise for intellectual purists. It is essential to gather empirical evidence which will indicate precisely what kinds of teachers, using what kinds of procedures, most effectively foster healthy mental and behavioral skills in different kinds of children who have greatly differing backgrounds, needs and future careers. If only because much variation in learning is due to the many social, intellectual, emotional and motivational differences among children, any technique which purports to be appropriate for teachers to use must be assessed for its impact on different kinds of children. In a larger sense, it simply is not good science, nor good empirical practice, to recommend a way of training teachers without knowing, in fact, how it will affect those teachers' students. That, after all, is the only criterion by which the ultimate worth of any educational system can be measured (p.969).

In view of the demands which extended practica will make on school, university and student personnel it is essential that knowledge of the relationships which bear on pupil outcomes be obtained and accommodated.

Purposes of the study

The basic purpose of the study was to investigate

the relationships within and among student teaching dyads and selected pupil achievements.

The specific purposes of the study were:

(1) to describe the relationships within different types of student teaching dyads;

(2) to discover whether student teacher performance can be related to the level of pupil achievement; and

(3) to examine the relationship between student teacher performance as reflected in pupil achievement and the particular nature of the student teaching dyad.

Research questions

The study was primarily concerned with one research question which encompassed the three specific purposes stated. The question, with generated subquestions was :

Is there a relationship between the nature of the student teaching dyad and pupil achievements?

a) What are the relationships in the student teaching dyads existing at the time of a structured intervention?

b) What are the pupil (cognitive) achievements resulting from the structured intervention?

c) What are the relationships between pupil achievements and the dyadic valence representing the relationship within the student teaching dyad?

d) What are the relationships between pupil achievements and the balance within each student teaching dyad?

SIGNIFICANCE OF THE STUDY

Co-operating teachers are assumed to provide a professional environment and support for intending teachers. Harven(1967) in an extensive review of research findings and ideas pertaining to the work of the co-operating teachers found that much of the day-to-day supervision of student teachers is the responsibility of the co-operating teacher. In addition Harven found that the primary concerns of the co-operating teachers were preparation of lessons for the student teacher to teach and making the student teacher "feel at home" in the new teaching situation. Castillo(1971) found that student teachers look upon co-operating teachers as instructional guides. In addition, student teachers expect to receive the type of guidance which should stimulate them to release their talents or potential capabilities. Much has been written about the possible effects of a good relationship between members of the student teaching situation. However the writings are often not based on research findings.

ASSUMPTIONS

The study was founded on three basic assumptions. First it was assumed that the relationships existing within

each student teaching dyad comprising the co-operating teacher and the student teacher assigned to that class can be assessed by self-report questionnaires. Secondly, it was assumed that pupil learnings attributable to the actions of a particular student teacher can be isolated. Thirdly, it was assumed that the relationship existing between the co-operating teacher and the student teacher has an influence on pupil cognitive outcomes.

DEFINITION OF TERMS

Literature concerning student teaching revealed inconsistencies in terminology used to refer to members of the student teaching situation. In this study, the following definitions of terms were used:

Student teaching: A prolonged period of laboratory experience in an actual classroom situation during which the student takes increasing responsibility in his preparation as a teacher under the direction of a faculty consultant representing his teacher-education center and a co-operating teacher who is responsible for the classroom situation (Yee,1967). The term is used synonymously with teaching practice.

Student teacher: A person engaged in student teaching.

Co-operating teacher: A classroom teacher who

carries the responsibilities for one or more student teachers in addition to his regular teaching assignment; sometimes referred to as teacher (Yee, 1967).

Faculty consultant: The Faculty of Education person assigned the primary responsibility for guiding and evaluating the student teacher.

Dyad: Two persons involved in social interaction (Yee, 1967).

Student-teaching dyad: The pair comprising the student teacher and the co-operating teacher.

Pupil achievements: The behaviors manifested by pupils in a formal school setting.

Relationship: The social interaction between the members of a dyad.

Cohesiveness: The attractiveness of membership in a group for its members.

Valence: The index of the dyad relationship determined by combining the rating of the co-operating teacher for the student teacher with the student teacher's rating of the co-operating teacher. Possible combinations for a valence are ++, +-, -+ or --.

SCOPE AND DELIMITATION

The study of the relationships within the student teaching situation was restricted to the student teaching

dyads and pupil achievement.

Some research on relationships within student teaching situations has focussed on the triad comprising the co-operating teacher, the student teacher and the faculty consultant (Yee, 1967). In the present study the high ratio of student teachers to faculty consultants and the limited interaction between the co-operating teacher, the faculty consultant and the student teacher made the dyad (comprising the co-operating teacher and the student teacher assigned to that class) a more suitable unit for study.

Metric linear measurement units were used as the content of the intervention lesson since (a) the subject was not currently being taught in the schools involved in the study; (b) the children were assumed to be relatively naive with respect to their knowledge of metrics; (c) the nature of the metric units made measurement of pupil achievement relatively easy to evaluate; and (d) the imminent introduction of metric measurement to the school system ensured minimal opposition by the schools' co-operating teachers to the lesson content.

Specifically, the study was restricted to an examination of the relationships within selected student teaching dyads and the performance of the student teachers

as reflected in pupil achievement. Student teachers who participated in the study were enrolled in the Professional Diploma in Elementary Education classes at the University of Alberta, during the 1974-75 academic year.

The study was restricted to the data obtained from the prepared instruments and post-intervention questionnaires.

ORGANIZATION OF THE STUDY

In Chapter I the overall purpose of the study has been presented in relationship to a supporting background of literature. Three specific purposes derived from a major research question, have been delineated. The importance of the study, its scope and delimitations have been described.

Chapter II provides a conceptual framework for the study by reviewing the literature concerning the behavior of small groups and group attempts to achieve balance, the effect of significant others in the development of self-concepts and the role of self-concept and confidence as related to performance.

Chapter III describes the methods of investigation and research procedures applied. The selection and

production of instruments, and the results of the pilot study are shown. This chapter also elucidates the procedures involved in the intervention, the use of kits to provide similar instructions to respective groups, and each person's role in the study. Finally, the procedures adopted for the collection and statistical analyses of data are stated.

Chapter IV reports the responses of co-operating teachers and student teachers and the correlations of these responses with measures of pupil achievement.

Chapter V provides the summary of the study, a discussion of the findings, and the conclusions and implications drawn from the study.

SUMMARY

The student teaching experience is acknowledged by educators as being an important aspect of an intending teacher's professional preparation. At a time when longer periods of in-school professional development are being advocated it is essential that the impact of the student teacher on the pupils in the classrooms be assessed and enhanced, if possible.

The effectiveness of the student teacher may be partly a function of the relationship existing between the co-operating teacher and the student teacher. The investigation of the relationships between members of the student teaching dyad with the levels of pupil achievement is an area in need of empirical research.

CHAPTER II

RELATED LITERATURE AND CONCEPTUAL FRAMEWORK

Introduction

This chapter sets forth a conceptual framework for the study. An emerging literature on the importance of interpersonal relationships to the successful functioning of small groups has been reviewed. An investigation was made of the existing theory on the function of small groups, in particular as it is related to the student teaching dyad in teacher education has been investigated. Evidence that the quality of the relationships existing between the co-operating teacher and the student teacher assigned to that class, has a bearing on the performance of the student teacher has been found in the literature. This, in turn, is hypothesized to affect the level of cognitive achievement by pupils in their classes.

THE DYAD

A dyad has been defined as a group of two persons and constitutes the smallest possible group. Thibaut and Kelley(1959) discussed the basis for the formation of groups

as a "willingness" on the part of the group members to interact. They stated

> The point should be made that whatever the gratifications achieved in dyads, however lofty or fine the motives satisfied may be, the relationship may be viewed as a trading or bargaining one. The basic assumption running throughout our analysis is that every individual voluntarily enters and stays in any relationship only as long as it is adequately satisfactory in terms of his rewards and costs(p.37).

We can therefore consider a dyad as having an "attraction structure(Newcomb,Turner & Converse,1965)" provided by the two attitudes - the attitude of each person in the dyad toward the other person. When considered together, these attitudes constitute a particular relationship which is dependent upon the members and the kinds of person-to-person attractions or negative attractions(aversions) involved, and which ultimately can be used to characterize or classify that dyad.

Dyads - the basis for all groups since all groups are compounded of dyadic relationships - have been shown to have distinctive properties. In a dyad, each member responds to the behavior of the other member,in that response for each member is at the interpersonal level. In this situation the members of the dyad acting together are likely to behave in different ways than the same two people acting separately. Each one tends either to do things he

would not do otherwise, or to modify his/her behavior, an outcome which suggests that a dyad has an identity which is greater than the sum of its parts.

In their comprehensive review of studies on the effects of group size, Thomas and Find(1969) reported that two-person groups appeared to have certain unique qualities. They cited the Bales and Borgatta(1955) study of discussion groups ranging in size from two to seven persons. On the basis of that study, Thomas and Fink noted that dyads were considered to be less stable than small groups with up to seven members. In addition they noted that since each member of the dyad holds a veto over the other member there is more danger of the interaction collapsing; there are more signs of tension than for larger groups; but, there is less expression of agreement and disagreement. They tentatively concluded

> ...smaller groups inhibit expression of disagreements and dissatisfactions more than larger groups and give each individual more opportunity to interact and to exhibit leadership behavior ... It is apparent that group size has significant effects on aspects of individuals and group performance, on the nature of interaction and distribution of participation of group members, on group organization, on conformity and consensus, and on member satisfaction (p.663).

Within dyads, in addition to the properties of avoiding disagreement and antagonism, Bales and Borgatta(1955) reported that dyads have high rates of asking

for opinion, but avoid giving opinion, and concentrate rather on exchange of information and agreement (or acknowledgement). Because of the size of the group the degree of personal involvement felt by individual members may affect behavior since people interact on a face-to-face basis (Lindgren, 1969).

The formation of groups, in particular dyads, is based on the need of one of its members for the existence of the group. The attractiveness of the group for its members depends upon the extent to which they think it will satisfy their needs (Watson, 1966). Within the group, the degree of personal involvement felt by the individual members also affects behavior and may vary with the size of the group, as well as with its character (Lindgren, 1969). In addition, findings reported by Hurwitz, Zander and Hymovitch (1962) appear to suggest that individuals with relatively little power to influence others behave toward those with relatively more power in an essentially ego-defensive manner. They continued

> This defensiveness probably results from the fact that individuals high in the power hierarchy are generally regarded by other group members as being able to help them achieve some of their goals. The power of influence possessed by the HIGHS makes the other group members want to be favorably regarded by them. And since these HIGHS can exercise their power so as to help or hurt others, they generate a feeling of uneasiness in other group members. Consequently, group members perceive HIGHS and behave toward them in ways calculated to reduce this uneasiness (p.800).

This viewpoint is reinforced by Festinger(1972) who noted that the presence of dissonance, which he defined as "the existence of non-fitting relations(p.210)" gives rise to pressures to reduce or eliminate the dissonance. He added that

> ...the strength of the pressures to reduce the dissonance is a function of the magnitude of the dissonance(p.215).

Findings from these studies suggest that when a person in an inferior position of power is faced with a dissonant situation then actions toward dissonance reduction will be necessary to provide necessary ego-support.

Relationships within dyads

The formation of a satisfactory relationship within a dyad like the student teaching dyad - particularly in view of the shortness of the interaction between the student teacher and the co-operating teacher - may be of importance. Thibaut and Kelley(1959) noted that apart from other factors, such as the possibility of innate fears and aversion, strangeness between partners of a prospective relationship increases uncertainty and therefore delays formation of the relationship. Tagiuri, Bruner and Blake(1958) noted regarding the recognition of affect in

others that

> ...like any other form of perceptual recognition, (it is) dependent upon the cues available and upon the degree to which an observer is set to utilize these cues(p.114).

They continued

> ...liking leads to continued interaction that permits learning about its cues, while rejection leads to separation, with a markedly impoverished chance for learning about its manifestations(p.115).

The interpersonal perceptions of individuals in a small face-to-face group appear to be dependent to a large extent upon the operation of a congruency between the feelings a member has toward another and how the other is seen as feeling toward him. In a study of interpersonal perceptions within small groups, Tagiuri, Bruner and Blake(1958) found that if two individuals have mutual feelings toward each other, their impressions of each other are likely to be accurate. They note that if mutuality of feeling between individuals happens to be absent they may be at crosspurposes with each other - a situation relieved by

> ...the practice of politeness and reserve designed to mask feelings whose recognition might prove disruptive. In any case, accuracy of perception in interpersonal relations seems as much a product of other factors as a skill in its own right(p.116).

By using the two categories of individual attraction, positive attraction and negative attraction(or

aversion), it is possible to classify any dyad as having a relationship of ++(reciprocal positive); +-, and -+(mixed); or --(reciprocal negative). This very simplified system of categorization represents one method of quantifying the relationships within dyads (see also Harary & Ross,1957; Newcomb,1961). In their description of the behavioral characteristics of dyads, Newcomb et al.(1965) reported

> Members of ++ dyads tend to associate freely and to communicate with each other with relatively few restraints, and to behave cordially toward each other - as might be expected. Members of -- dyads tend to do none of these things, except as situationally required. The behavior of +- dyad members is often restrained, and tends to resemble that of -- dyads ... the frequencies of behavioral variables that are relevant to attraction-association, communication, and expressed cordiality - tend to increase as the dyadic level of positive attraction becomes more extreme, and to decrease as the dyadic level of negative attraction(or aversion) becomes more extreme(p.304).

Stability and balance of dyads

The stability within dyads, following adequate opportunity for acquaintance, is dependent upon whether the initial perceptions of the partners within the dyad are justified, or are recognized as unjustified and corrected accordingly. If we can assume that A, who is positively attracted to B, tends to see B as attracted toward himself - and this is justified over time - then each is being rewarded by the other and the dyad tends to remain stable at

the ++ level(Newcomb et al. 1965). For similar reasons, negative attraction(aversion) that is reciprocated in kind tends to result in stable dyads, for each member of a --dyad is negatively rewarded(punished) and is "thus motivated to avoid association, spontaneous communication, and cordial behavior vis-a-vis the other(p.305)."

Under conditions of continuing interaction, mixed dyads(+- pairs) tend to be unstable, and tend to move in either a ++ or a -- direction. The direction of movement toward stability is dependent in part on how overtly one member shows his cordiality and the other his avoidance or hostility(Newcomb et al.,1965). In their study of the stability/instability of 69 dyads over a period of 10 weeks of interaction, from the 5th to 15th weeks, they concluded

> Balanced systems of attitudes tend to be stable because they are rewarding and thus there is little motivation to change them, whereas imbalanced ones are dissatisfying and lead to attempts to reduce the dissatisfaction.

In addition, however, they added

> Psychological balance, whether with respect to oneself or any other attitude object of importance, is of course only one of the ways in which dyad members may reward each other,or fail to do so. The basic principle is that a dyad relationship tends to be stable(that is, resistant to change) as long as it is rewarding, in whatever ways, to both members(p.307).

The movement toward balance within a dyad relationship can be illustrated by equilibrium theory, a

combination of contributions by Heider(1958), Newcomb(1959), Osgood and Tannenbaum(1955), and Festinger(1957), which asserts that human nature abhors 'incongruity-dissonance-imbalance' and continually strives to eliminate it in some way. Pepitone(1964) has stated

> A balanced state is one in which the unit formation and the attitudes toward the objects in the unit formation coexist harmoniously. If a balanced state does not exist for the person, he experiences a pressure to change either the unit formation, by way of cognitive restructuring or action, or the attitudes(p.31).

Within a dyad relationship - whether it be a relationship between the person and another social or nonsocial object - a situation is balanced if a person likes the object with which he is in some way connected. Pepitone(1964) noted that if being associated with someone in the same group represents a unit structure in the person's cognitive field, the balance hypothesis predicts a tendency toward positive evaluation of the other person who is part of that unit. He warns that it must be kept in mind that whilst this tendency does exist there is the situation that an individual who evaluates himself positively does not always evaluate positively a person with whom he is connected in some way.

Attempts to achieve consonance is a major motive. Yee (1967) sees this as a constant strain toward a balanced

state of mind at all times. Deutsch and Solomon (1959) state the "law" concerning the tendency to harmonize our experience and expectations about persons and their attitudes as follows :

> Whenever a state of imbalance exists or impends, a tendency will be produced in the individual to engage in behavior which will change the perceived entities in such a way as to remove or prevent imbalance (p.96).

Thus within the dyad there is a relationship which, if not already in equilibrium, is striving to achieve balance - a situation which will provide reward, either positive or negative, for both members of the group.

SELF-ESTEEM OF THE INDIVIDUAL

In 1902, C.H.Cooley formulated the theory of the "looking glass self" in which he postulated that our feeling about ourselves is much influenced by what we imagine certain other people see in us. He wrote

> A self idea of this sort (the looking glass self) seems to have three principal elements: the imagination of our appearance to the other person; the imagination of his judgment of that appearance; and some sort of self-feeling, such as pride or mortification. The comparison with a looking-glass hardly suggests the second element, the imagined judgment, which is quite essential...the character and weight of that other, in whose mind we see ourselves, makes all the difference with our feeling...A man will boast to one person of an action - say, some sharp transaction in trade - which he would be ashamed to own to another(Cooley in Watson, 1966, p.25).

Maslow(1970) wrote that there is a hierarchy of needs which serves to motivate the individual. This hierarchy encompasses, in order of priority, the physiological needs, the safety needs, the need for belongingness, esteem needs and the need for self-actualization. Within the student teaching situation, it is conjectured that the need for esteem is important. Maslow considered that esteem needs can be classified into two subsidiary sets.

> ...first, the desire for strength, for achievement, for adequacy, for mastery and competence, for confidence in the face of the world, and for independence and freedom. Second, we have what we may call the desire for reputation or prestige (defining it as the respect or esteem of other people) status, fame and glory, dominance, recognition, attention, importance, dignity or appreciation(p.45).

He considered that satisfaction of the self-esteem need leads to feelings of self-confidence, of worth of capability and of being useful and necessary in the world; hence it can also be accepted that the thwarting of these needs leads to feelings of inferiority, of weakness, of helplessness. Maslow(1970) concluded

> The most stable and therefore most healthy self-esteem is based on deserved respect from others rather than on external fame or celebrity and unwarranted adulation(p.46).

Self-esteem and performance

The self-esteem of the student teacher in the student teaching situation has been studied (Wright & Tuska, 1965, 1968; Walberg, 1967, 1968; and Walberg et al., 1967). Little research of the relationship between self-esteem and achievement in the student teaching situation has been done. However, studies on the relationship of a student's self-concept of ability to his own academic self-achievement have been reported. Brookover, Thomas and Patterson (1965) reported a study using 1050 urban seventh grade students in which each child was given the Self-Concept Ability Scale to determine the concept of his ability, both in general and in particular subjects. They reported

1. There is a significant and positive correlation between self-concept and performance in the academic role; this relationship is substantial even when measured I.Q. is controlled.

2. There are specific self-concepts of ability related to specific areas of academic role performance, which differ from the general self-concept of ability. These are, in some subjects (not named) significantly better predictors of specific subject achievement than is the general self-concept of ability.

3. Self concept is significantly and positively correlated with the perceived evaluations that significant others hold of the student. However, it is the composite image rather than the images of specific others that appears to be most closely correlated with the student's self-concept in specific subjects (p.484).

An interesting finding of this study was that a significant

proportion of those who profess high self concepts of ability surprisingly do not perform at comparable levels. From this Brookover et al.(1965) hypothesized that confidence in one's academic ability is a necessary but not sufficient factor in determining scholastic success.

The proposition that self-concept is related to performance and to the expectation of others is postulated by Brembeck,1971; Borislow, 1965; and Diller, 1954. Irvin(1967) considered as a result of a study of the sentence completion responses and scholastic success or failure of 171 first year college students at the University of Illinois that

> It may be that a positive conception of one's self as a person is not only more important than striving to get ahead and enthusiasm for studying and going to school, but that it is a central factor when considering optimal scholastic performance(p.271).

Mehrens(1967) reported a study in which 142 graduate students at the University of Minnesota rated themselves on traits which included reasoning power, originality, memory, alertness, accuracy, application, co-operation, moral attitude, health and zeal for investigation. As a result of the investigation it was concluded that a student's self-concept - how he perceives himself with respect to various traits - is a possible factor that could contribute to an accurate prediction of

achievement in graduate school.

Purkey(1970) in an extensive review of the relationship between self-concept and school achievement stated that the successful student is one who is likely to see himself in essentially positive ways has been verified by a host of studies. Purkey concluded

> There is a persistent and significant relationship between the self-concept and academic achievement at each grade level, and that change in one seems to be associated with change in the other. Studies have been presented to indicate how the successful student sees himself, and how his self-concept contrasts with the self image of the failing student. Although the data do not provide clear-cut evidence about which comes first - a positive self-concept or scholastic success, a negative self-concept or scholastic failure - it does stress a strong reciprocal relationship and gives us reason to assume that enhancing the self-concept is a vital influence in improving academic performance(p.27).

Hersh(1969) in an analytical approach to the professional education of teachers concluded that how a teacher behaves after he leaves college is largely determined by how he has learned to see himself and how he perceives his relationship with his students, to subject matter, and to the profession of teaching. He stated

> Of all the perceptions existing for an individual none is as important as the perception of his self-concept(p.121).

Merrill and Schuchman(1973) considered that the

student teacher's perception of self is subjected to a number of forces within the student teaching situation, principally the pupils , the professional staff of the school, and particularly the co-operating teacher. They stated

> Some staff members, particularly the supervising teacher, will work directly with the student teacher who obviously will receive a number of direct impressions about himself from the skillful teacher(s) with whom he is associated. The point here is that the student teacher receives both subtle clues and specific feedback about the kind of person others think he is. For some student teachers, this is supportive. The reactions of others may confirm his conception of the kind of person he thinks he is and wants to be. Other reflections of self may have meanings which will vary or be so contrary to the student teacher's self-perception that he will have great difficulty in accepting the information. If this is the case, the student teacher faces a terrific learning task. He must learn about himself. This may mean that he will want to change as much as possible toward a new and different self. On the other hand, it may mean that he must accept himself by acknowledging certain limitations in his skills and abilities which until this time could be ignored. The student teaching program, therefore, directly engages the perceptual field of the student teacher in a most sensitive area. Inevitably, it shapes and reshapes his perception of himself, and as self-perception changes, so does the individual's behavior and outlook(p.52).

Waller(1967) found that the significant people for a school teacher are other teachers. Thus it is claimed that the respect of the co-operating teacher for the student teacher in his/her charge can have considerable effect on the self-concept, hence self-esteem, of the student teacher which has implication for the success of the student

teaching situation.

FORMATION OF STUDENT TEACHING DYADS

Dyads are formed in the student teaching situation by decree, albeit with available informational-input to the allocating personnel. Matching the members of the student teaching situation, particularly the 'fit' of the student teacher and the co-operating teacher, has been considered to be of relevance (Andrews,1964; Bennie,1966; Johnson,1964; Merrill & Schuchman,1973) though research on this aspect has, as yet, been inconclusive.

Leslie(1971) matched student teachers to co-operating teachers on the basis of students' scores on the MMPI, applications to student teaching, interviews with university instructors, student self reports, two questionnaires and a Q-sort plus an interview with the student teacher. Sources of information on the co-operating teachers were a questionnaire and interviews with university supervisors, school district subject matter specialists, and selected district administrators. In addition, demographic variables such as socio-economic status, religious preferences, sex, ages, and physical proximity, plus personality variables such as sense of security, autonomy, innovativeness, and progressivism were included. However,

the overall findings were not clearly supportive of the theory. The study concluded

> ...it is certainly possible that matching may be productive if the right variables are identified. However there is a serious flaw in the basic theory because it does not account for the continuous distribution of human traits: combinations of human characteristics just do not occur in neat packages. Although inference is severely limited, it would seem that colleges of education would be ill advised for the present to spend great amounts of time and effort in matching co-operating teachers with student teachers (p.308).

Lucasse (1971) studied the effect of certain personality variables within 123 student teacher - co-operating teacher dyads of a Michigan student teaching program. He explored the relationship between the degree of personality similarity within the student teacher - co-operating teacher dyad and six aspects of the directed teaching experience: intra dyad communication; intra dyad evaluation; stress in student teaching; feelings for the student teacher by the pupils; success of the student teaching experience; and, the student teacher's motivation for a teaching career. One major conclusion from this study was that the quality but not the quantity of intra dyad communication was positively related to intra dyad similarity on the personality dimension of extraversion - introversion. In contrast to Leslie's (1971) findings, Lucasse concluded

> In view of the fact that directed teaching is

> designed for the primary benefit of the student teacher and the finding that the student teacher is the member most sensitive to the level of intra dyad personality dissonance, a program to assure low difference in the student teacher - co-operating teacher match should be encouraged (p.6272-A).

This finding was supported by Brabble (1969) who investigated student teacher - co-operating teacher compatibility and its relation to success in student teaching. She concluded it was her belief that improved efficiency and effectiveness in assignment of student teacher to supervising teachers represented one link in the chain of action needed to improve this aspect of the pre-service program.

The aspects to be considered in the placement of student teachers have been stated by Bennie (1966) as

> ...the teaching fields, the personality of each party, the student teacher's academic ability, the socio-economic level of the pupils, the attitude of the student teacher and the co-operating teacher, the competency of the cooperating teacher, and the willingness of the school administration to accept and work with the student teacher to be assigned.

Thus the selection of student teacher/co-operating teacher dyads as currently practiced would appear to be justified in the absence of research which will readily identify qualities important to the student teaching dyad.

Dyadic interaction

The effect of a satisfactory relationship within the student teaching dyad is hypothesised to have important effects on the co-operating teacher's actions. Boy and Pine(1971) - in discussing classroom behavior - noted that where there is a satisfactory relationship there are benefits to be gained for both the student and the teacher. They noted that if the teacher deeply values the student, then the student will develop a deeper appreciation of his own worth, will respect himself and consequently, will respect the teacher. Within this atmosphere the teacher is likely to provide permissiveness, described as

> ...an atmosphere created by a relationship which reflects acceptance, empathy, respect, and understanding(p.11).

They continued

> The teacher does not create an atmosphere of permissiveness by telling students they are free to express themselves. Students feel free to explore their capacity for self directive growth when they experience permissiveness, not from being told that they are in a permissive situation. To be permissive requires emotional security and self-acceptance on the part of the teacher...if the student is to grow and understand the meaning of his experience, he must feel free enough to reveal his internal self without fear of contradiction or interference from the teacher(p.11).

Support for this position is given by Wey,(1961); Perrodin,(1961); Combs,(1962); Harven,(1967) and Brabble,(1969).

That the development of confidence in a teacher - hence, by analogy, in a student teacher - is important has been recognized by Smith(1962) who stated

> It is not the knowledge a teacher has of his subject matter or of children or of methods of teaching that makes him a good teacher so much as the freedom to use this knowledge. I am speaking here not of external constraints to freedom but of inner constraints imposed unconsciously by the teacher upon his own thinking. Teachers rarely use much of the knowledge they have about children, about methods of teaching, about psychology, they tend to look outward for sources of authority and support for their actions rather than having an inner confidence in their own knowledge(p.38).

Rogers(1969) described freedom in education and the means to assist students to become individuals who are able to take self-initiated action and to be responsible for their actions . He considered that the teacher must have trust in the human organism; be sincere; accept the individual student as having worth; and be able to understand the student's reaction from the inside. In addition, the teacher should make himself and his special knowledge and experience clearly available to the student. This position is supported by Romey(1972) and Combs(1962) who stated

> It is possible for the supervisor to support, encourage and enhance a teacher in areas that are important to the teacher, thereby aiding in the release of his potential(p.24)

For the student teacher, the development of a satisfactory relationship within the student teaching dyad is considered to lead to a satisfaction of the self-esteem needs which, according to Maslow(1970) leads to

> ...feelings of self-confidence, worth, strength, capability, adequacy, of being useful and necessary in the world(p.46).

Effects of dyad relationships

Cohesiveness has been defined by Festinger,Schachter and Back(1950) as the attraction of membership in a group for its members. In a report of a study on social pressure in informal groups, Back(1958) stated

> ...the results showed that an increase in cohesiveness ,independent of its nature, will produce the following consequences:
>
> 1. In the high cohesive groups the members made more effort to reach an agreement.
>
> 2. Behavior in the highly cohesive groups was more affected by the situation than in the low cohesive groups.
>
> 3. In the highly cohesive groups the discussion was more effective in that it produced influence - that is, group members changed more toward the partner's positions than they did in the less cohesive groups(p.32).

Thus cohesiveness can manifest itself in many ways, and many different factors can contribute to the same end result.

Newcomb et al.(1965) agreed that

> ...cohesiveness is a very complex property of groups, but it is not everything. In this respect, it is somewhat like individual intelligence... Since both individual intelligence and group cohesiveness are complex, it is clear that no single index of either of them can reveal all the complexities (p.381).

The relationship between the co-operating teachers and the student teachers, coupled with the effect/s which these relationships have, have been the subject of much concern, and some research. Wey(1951) in a study of the difficulties of student teachers and beginning teachers indicated that relational difficulties with co-operating teachers were classified as one of the major problems of student teachers in his sample. Harven(1967) in an analysis of 216 dissertation extracts and 211 articles written between 1942 and 1962 on the work of co-operating teachers, found that the primary concern of the co-operating teacher was his preparing for the student teacher and making the student teacher "feel at home" in the new teaching situation. This is interesting in view of Goodlad's (1965) comment that student teachers are more concerned with survival than with principles, and Horowitz's(1968) finding that

> ...student teachers are more concerned with personal needs and less concerned with the expectations of others than are co-operating teachers(p.322).

More recently Edgar(1972) reported that there is evidence to suggest that practice teaching experiences have damaging consequences for the new teacher's self image and ego-strength. He suggests "...we should use the affective relationships more deliberately in teacher education (p.171)."

The role of the co-operating teacher in the student teaching situation has been considered to be of importance(see Troisi,1959; Nelson,1972; Price,1972). Perrodin(1961) reported that student teachers made significant improvement in professional attitudes as measured by the MTAI when placed with co-operating teachers who had received a special preparation program in supervising student teachers. When co-operating teachers were trained to supervise beginners, the beginners finished their student teaching with much more learner-centred values than did most beginners at the end of their student teaching.

Seperson and Joyce(1973) more recently claimed that the co-operating teacher apparently really is a powerful influence for good or for ill. However, results of other research aimed to resolve questions concerning student teachers' attitude changes tend to be contradictory regarding the effect of the interaction of the dyad on the

attitude of the student teachers (Price, 1961; Perrodin, 1961; Corrigan & Griswold ,1963; Horowitz,1965). Yee (1967) reported that:

> Since these results tend to conflict with the findings of other studies which point to the co-operating teacher as the most influential factor in student teaching, the dyadic relationships in student teaching may be found to vary with the individual characteristics of the persons involved (p.12).

Stradley(1968) wrote of the need for good rapport between the student teacher and the supervisor. He considered that there needs to be an openness and a frankness betweeen the two if they are to be able to implement an effective program geared to specific individuals and to a specific school environment. He stated

> Each must have respect for the other as a person and as a member of a teaching team if each one is to grow and profit from the relationship. The supervising teacher must exhibit leadership, but not dominate(p.19).

Stradley suggested that the co-operating teacher and student teacher must have sufficient rapport with each other and understanding of each other so that the student teacher can function under the critical eye of his co-operating teacher without feeling that his efforts are going to be torn asunder.

General support for the need for a good relationship was given by Goldhammer(1969) who stated

> If good teaching requires intimacy, empathy, sensitivity, and psychological investment, and if indeed, it is the relationship that teaches, rather than the text, then supervisees must be experienced as people ...Their emotional capacities, their cognitive styling, their views of life and of the world, their value, the terms in which they have learned to meet anxiety, and altogether, their relationships to themselves represent their teaching essence and must be focal in significant supervisory activity(p.365).

Curtis and Andrews(1958) stated that when a team relationship between the co-operating teacher and student teacher is carefully promoted, distance between them will lessen rapidly and emotional tensions evaporate. Similarly, Sorenson and Halpert(1968) noted that whether the apprehension which most prospective teachers experience in the early stages of student teaching is quickly overcome or whether it persists will be determined by the relationship between candidate and supervising teacher.

From the foregoing it would then appear that the relationship between the co-operating teacher and the student teacher is an important element within the student teaching dyad.

One possible outcome when cohesiveness develops within the student teaching situation could be the development of a close relationship such that the co-operating teacher and the student teacher would regard each

other as friends or confidants. Few people question the value of friendship in human life - for many persons the bond with a friend gives meaning and worth to all other experience. Admitting that friendship is difficult to define, hence difficult to study, one may accept that there can be marked difference in self-confidence and feeling of adequacy between a person alone and a person accompanied by his or her friend. Commentators on friendship have stressed the importance of sincerity and straightforwardness (Watson,1966). One of the virtues of a good friendship is that a person feels secure with his friend. His friend knows and accepts his real self, therefore he need not pretend or cover up. The assurance that the friend will understand and accept adds to his own self-acceptance and confidence.

There are personal benefits to be gained from a close association which may have implications for the student teaching situation. Watson(1966) reported that in the presence of an accepting friend a person may be even freer to be oneself "than one is when alone(p.46)." Where members of a group feel that they are on the same level there is more likelihood that spontaneous communication, which is most readily achieved in peer groups, will emerge. Further, where close associations between co-operating teachers and the student teachers develop, communication

about teaching will be facilitated and will subsequently lead to the student teacher's adoption of more effective teaching strategies.

Johnson and Johnson (1974) in a most extensive review of research on co-operative and competitive instructional goal structures stated that there is overwhelming support for their conclusion that "almost all instructional activities should take place within a co-operative goal structure (p. 232)." In omnibus fashion they stated

> ...co-operative goal structures should be used when instructional objectives focus upon such cognitive and affective outcomes as : problem solving effectiveness; group productivity; ... competence in co-operative situations; ... communication effectiveness; ...positive attitudes toward subject areas, instructional activities, teachers, and other students; reduction of prejudice and the appreciation of cultural and individual differences; development of positive self-attitudes and a belief in one's basic competence and worth; development of achievement motivation; development of interpersonal skills; and development of behavior based upon intrinsic motivation. A co-operative goal structure should also be used when educators wish to emphasize learning processes such as : moderate levels of anxiety; positive interpersonal relationships and the related cohesion and psychological support and safety; the reduction of hostility and conflict among students; open, effective, and accurate communication among students; trust; mutual influence promoting achievement and task orientation; sharing of ideas and materials and mutual helpfulness; involvement in instructional activities and tasks; co-ordination of efforts and division of labor; and divergent and risk-taking thinking (p. 230).

From the extensive collection of studies used by Johnson and Johnson, two are noted as examples. Shaw (1958) contrasted co-operative and competitive pairs in a motor task and in a memory-reasoning task. Although the college student subjects usually enjoyed the competition, they performed most efficiently in the co-operatively structured task; next best when acting alone; and most poorly when competing. The same result was obtained in another study (Jones & Vroom, 1964) which compared jigsaw puzzle solutions produced by two subjects working in a situation where each could observe the progress of the other. When told they were co-operating, they achieved a higher total level of performance and gave more evidence of division of labour than they did when they were instructed to compete with each other.

In other research, Watson (1966) who reported a number of studies of subjects working alone and later in competition concluded that rivalry usually brings some increase in effort and output, but may have a detrimental effect upon the quality of work. The examples cited support the claim by Newcomb et al. (1965) that satisfying interpersonal relations, like task achievement, are outcomes of interaction within the group as a whole. It is the facilitative effects on members' interaction that enable a highly cohesive group to develop the following

characteristics :

a. a high level of mutual attraction among its members - not necessarily in the form of personal liking, but in the general sense that members attribute reward value to each other;

b. shared attitudes, including shared acceptance of rules; and

c. well-developed structural integration; members' role relationships, including those of leadership, are understood, accepted, and smoothly co-ordinated (p.486).

Thus it seems evident that dyad members' success in achieving a common goal is likely to increase their attraction toward one another, particularly when they are co-participants. This outcome is predictable on theoretical grounds since attraction toward a person is conceptually equivalent to attributing reward value to him, and since it is rewarding to be helped in achieving a desired goal (Newcomb et al.1965).

Although presently available evidence lends support to the view that attraction is a consequence of goal achievement, Newcomb et al.(1965) maintain that attraction may also be an antecedent condition, in the sense of contributing to the group's potential for task success.

The research findings support the contention that the development of a positively rewarding relationship within the student teaching dyad will lead to the

development of self-esteem in the student teacher, in particular as it applies to the student teaching situation. This should, in turn, lead to the mutual development of a co-operative goal-setting structure for the co-operating teacher and the student teacher. It is conjectured that given a mutually satisfying relationship within the student teaching dyad, the student teacher will develop a positive self-concept of him/herself as a teacher, albeit a beginning teacher. As a consequence, the student teacher will have more confidence; will have less fear of making mistakes, hence will take more risks; through effective communication with the co-operating teacher there should emerge effective planning and preparation for lessons; and finally, there should be more confidence in the student teacher's interaction with the pupils. Finally, since the student teacher will interact with the pupils in what would be for him or her a permissive situation, the pupils within that class should benefit from the cohesiveness of the relationship by exhibiting superior achievement.

From the foregoing it would then appear that the relationship between the co-operating teacher and the student teacher is an important element within the student teaching dyad.

Given the development of a satisfactory

relationship within the student teaching dyad, will there be positive effects on the outcomes of the interaction of the student teacher and the pupils in the co-operating teacher's class? Will student teachers associated with mutual relationships within student teaching dyads perform more capably, the same as, or less capably than student teachers associated with divergent relationships within their student teaching dyads? What difference/s in pupil achievement can be attributed to the quality of the student teaching dyad? Will the quality of the relationship within the student teaching dyad affect the student teacher's self-esteem? Does the student teacher's self-esteem affect his effectiveness as a student teacher as evidenced by pupil achievement? Will the student teacher's self-esteem affect his attitude toward teaching? What factors within the student teaching dyad affect the relationship between the co-operating teacher and the student teacher?

SUMMARY

The first part of this chapter discussed the literature pertaining to the dyad, the relationships within the dyad, and the stability and balance of the dyad over a period of time. The determination of the dyad relationship and its categorization were discussed in relation to the constant striving of the dyad members for the avoidance of

imbalance.

The second part of the chapter was devoted to a discussion of the development of self-concept and self-esteem in the individual in its relation to the significant others with whom the individual interacts. The possible effects of self-esteem on the individual's subsequent performance were investigated.

The third part of the chapter dealt with the theory and practice of the formation of student teaching dyads, the subsequent interaction of the dyad and finally the effects of dyad relationships with particular attention to the effects of a satisfactory relationship within the student teaching situation on the pupils within the respective classes.

The final section of this chapter explored the possible effects on cognitive achievement of the pupils of the co-operating teacher which could be attributed to the actions of the student teacher assigned to that class.

The theoretical framework described in this chapter has been used as the basis for conducting a correlational study of the relationships existing between members of the student teaching dyad and specified learning

outcomes achieved by pupils who are associated with each dyad.

CHAPTER III

METHODS OF INVESTIGATION AND RESEARCH PROCEDURES

Introduction

This chapter describes the research design and methodology chosen for the study. In order to do so adequately, the difficulties associated with any research into classrooms were reviewed. Where it was possible to do so, these factors were taken into account in the design for the study of the dyad relationships between student teachers and co-operating teachers and the effects of these relationships on pupil achievement.

The field of research on teaching effectiveness is in a state of development where many findings are of the nature of "hypotheses to be tested" rather than "conclusions to be generalized". This applies particularly to those aspects of educational research concerning the effect of human relationships on educational achievement.

The methods of investigation and research procedures used in this study have been selected in an effort to apply research techniques to an area acknowledged

to be extremely difficult to describe in empirical terms.

Research design

The selected research design has been classified by Campbell and Stanley (1973) as the One-group Pretest-Posttest Design - a design reported as being widely used in educational research. Even though this design has confounding extraneous variables which can jeopardize internal validity, it is used often in educational research presumably because the degree of control required by true experimental models is very difficult to obtain. Campbell and Stanley (1973) note five confounding variables which apply to the pre-test - intervention - post-test design. The first of these five variables is "history" which may account for changes in post-test scores due to events occurring in the time interval betweeen the pre- and post-tests. The second factor cited as a confounding variable is "maturation" which concerns the personal growth or conditions of physical states of the individual between testings. The effect of "testing" , the third variable , has been widely documented as being responsible for a change in post-test scores due to the respondents' familiarity of the test by participation in the pre-test. Finally, "statistical regression" is reported as being the effect due to the imperfect correlation between pre- and post-testing

with the same instrument or parallel forms of the same test.

It is acknowledged that the variables of "history", "maturation", "testing", and "statistical regression" may have bearing on the study. However whilst the research design chosen had acknowledged weaknesses there were other considerations, notably the availability of classes for use as control groups, which were deciding factors in its choice for the study.

Research method

The research method was selected to account for the difficulties inherent in this type of educational research. Within a classroom it is acknowledged that there are a great number of variables over which a researcher has little effective control. However, there are factors within a classroom over which a researcher can exert a degree of influence, if not control. These factors include the time of the presentation of materials, the content of the material to be presented, and the manner of presentation. In order to take advantage of every degree of influence possible, the research method included a control factor whereby all co-operating teachers and student teachers received the same instructions and materials for their respective groups in the form of a self-explanatory kit.

These kits were designed to ensure that, as far as possible within the study, each action undertaken by the co-operating teacher or student teacher was in conformance with the proposed research methodology.

One feature of the research methodology apparent in this study, as in many other studies, is that it necessitated production of original research instruments. The scope of the study is parallel, but not identical to, previous research work. As Rosenshine and Martin(1974) point out, it is regrettable that there is so little research built on the research done by other workers, resulting in "a lack of integration of previous research(p.11)." For this reason, it was decided that part of this problem could be overcome by using instruments designed and researched by Yee(1969) for a similar study to determine the independent variables; specifically, the relationships between the co-operating teacher and the student teacher, scored in terms of valences indicating levels of attraction within each relationship.

METHODOLOGICAL ASSUMPTIONS

The researcher made certain basic assumptions regarding the methodology used in this project . These assumptions are :

(a) that there was general acceptance by the co-operating teachers of the research methodology, the kits, and their own involvement;

(b) that the kits supplied to the co-operating teachers and student teachers provided efficient communication;

(c) that the co-erced involvement of the student teachers did not significantly affect their participation either positively or negatively, as evidenced by pupil outcomes;

(d) that there was general acceptance by the pupils that the intervention, - the pre-test, metrics lesson and post-test - were legitimate aspects of their class work;

(e) that the subjective ratings of questionnaire responses were adequately reliable;

(f) that the experiences of judges used for subjective ratings were adequately pertinent; and

(g) that the researcher was adequately objective toward the study.

LIMITATIONS

Limitations to the study may have occurred through the influence of the following factors:

(a) the nature of the research and its perception by co-operating teachers and student teachers as an evaluation of their professional ability;

(b) the degree of acceptance by, and credibility to, the co-operating teachers and student teachers, of the researcher's competence;

(c) the non-acceptance by some co-operating teachers of pupil outcomes as a method of determining teaching effectiveness (Appendix D);

(d) the limitations of teaching to attain specific cognitive objectives;

(e) the emotional stress toward the project experienced by student teachers ;

(f) the inexperience of student teachers in the use of accepted teaching strategies;

(g) the possible lack of the effectiveness of the research 'blind', which was built into the instructions;

(h) the relatively short time the co-operating teacher and student teacher had had for interaction before the study was undertaken;

(i) the limitation of interaction with co-operating teachers, in general, due to the constraints associated with a one year teacher education program; and

(j) the fact that student teachers were not volunteers to the research project.

PILOT STUDY

Purposes of pilot study

The pilot study was conducted to achieve the following purposes:

1. to develop a Metric Linear Measurement Test (MLMT) suitable for use as a pre- and post-test instrument for the study;
2. to establish test-retest reliability for the developed instrument; and
3. to field test the instructions for administering the test, and instructions for marking and scoring the optical scoring sheets to be used in conjunction with the MLMT.

Design of the pilot study

One class in an urban elementary school was requested to participate in the study. This class was selected by the researcher because: (a) it was in an area considered similar to other areas in which respondent schools were located; (b) the classroom teacher had been associated previously with the researcher and a similar class of education students; and, (c) frank and critical responses could be anticipated from the teacher.

The pilot study was conducted over a period of five weeks. Parallel forms of the MLMT were administered as a pre - test by the class teacher on two successsive mornings. Optical scoring sheets were used successfully by the children and these sheets were hand scored by the class teacher with the use of a marking key.

The revised test derived from the items considered most suitable from the initial parallel forms of the MLMT was administered to the same class five weeks after the pre-test. The scores from this testing and the scores from the items on the previous parallel forms of the test were machine marked and card punched for test-retest computer analysis.

Results of the pilot study

The pilot study resulted in modifications suggested by the teacher being incorporated into the instructions for the administration and subsequent marking of the revised forms of the MLMT.

Test re-test reliability of the MLMT was established at a satisfactory level (Spearman rho = 0.73).

SELECTION OF SAMPLE

The sample for the study comprised selected student teachers from the Professional Diploma program in Elementary Education at the University of Alberta during the Fall Term, 1974, and the co-operating teachers and classes associated with this program.

The student teachers in this program were chosen because their interaction with the schools was continuous during an academic term.

The co-operating teachers were all volunteers to the study and many had been associated with the program during the academic year 1973-1974. All co-operating teachers who were invited to participate in the study consented to do so.

INSTRUMENTATION

The study drew from six data sources:

a) Pupil achievement was selected as the criterion of the student teacher intervention. Achievement scores were obtained by pre- and post tests administered by the co-operating teacher of that class. The Metric Linear

Measurement Test prepared for this study was used. The scoring procedures, as outlined below, were used.

b) Co-operating teachers and student teachers provided introspective data on interpersonal relationships within each student teaching dyad. The co-operating teacher's relationship with the student teacher and the student teacher's relationship with the co-operating teacher were described, respectively, by using the "My Student Teacher" and "My Co-operating Teacher" questionnaires as developed by Yee(1967) (Appendices A,B).

The reliability of the questionnaires had been determined by use of Horst coefficients. Yee(1967) reported that

> Results of our reliability tests indicated that the instruments used in this study were internally consistent and did produce (measures of) attitude relationships(p.52).

Data from these instruments were used to determine the valences which existed within each student teaching dyad by allocating valences as either positive(+) or negative(-) with respect to the aggregate score being above or below the mean for that grade.The composite valence of the student teacher/co-operating teacher dyad was determined by combining the individual valences for the student teacher and the co-operating teacher.

c) Observation by the co-operating teacher of the student teacher's lesson was conducted using an observation schedule constructed by the researcher. In view of the absence of any measure of reliability among raters the information obtained from this instrument has limited use. However, it did provide a concurrent rating of each co-operating teacher's perception of the success of the intervention lesson.

d) Demographic information was provided by co-operating teachers on the My Student Teacher questionnaire developed by Yee(1967).

e) A questionnaire administered subsequent to the intervention was used to gain demographic and reactive information from the student teachers(Appendix C).

f) An open-ended interview with all co-operating teachers and student teachers was conducted subsequent to the intervention to determine the reaction of the groups to the research. This information was not intended to be treated statistically but to provide anecdotal suppport, as a cross check, for observed aspects of the research. The provision of an opportunity for discussion of the study among involved personnel and the researcher was a conscious

secondary purpose.

INSTRUCTION KITS

Instruction kits were prepared for co-operating teachers and student teachers to ensure that all participants received exactly the same instructions as other members of their respective groups.

Co-operating teacher kit

The kit supplied to each co-operating teacher contained instructions and materials for the intervention (Appendix C).

1. Confidential Summary for Co-operating Teachers provided information about the conduct of the test.
2. Instructions for the administration of the Metric Linear Measurement Test.
3. Metric Linear Measurement Test Forms.
4. Optical scoring answer sheets.
5. Answer Key for scoring the Metric Linear Measurement Test.
6. My Student Teacher - Part 2 questionnaire.
7. Observation of Student Teacher's Lesson questionnaire
8. Envelope for sealed return of My Student Teacher - Part 2 questionnaire.

Student teacher kit

Each participating student teacher was supplied with a kit of instructions and materials to be used in the intervention (Appendix B). Included in this kit were:

1. A short article entitled Does Student Teaching Make a Difference to Children's Attainment? which served as an introduction to the set of instructions for the conduct of the lesson:
2. Extract from Harmer, Teaching Strategies for Student Teachers, (1969)
3. Information regarding metric linear measurement units.
4. Summary Analysis Sheet of pre-test in Metric Linear Measurement Test.
5. Hierarchical List of Objectives in the Metric Linear Measurement Test.
6. My Co-operating Teacher questionnaire.
7. Envelope for sealed return of My Co-operating Teacher questionnaire.

THE INTERVENTION

Form of the intervention

The intervention for the study was in the form of a thirty-minute lesson on metric linear measurement units.

Each student teacher was asked to teach this lesson to the same class to which he had been assigned for the term.

To ensure that there would be as much consistency as possible, it was decided that:

1. All instructions for co-operating teachers and student teachers would be supplied in kit form.
2. The student teacher would receive two (2) days notice of his/her involvement in the study, hence all students had the same number of days to prepare the required lesson.
3. The student teacher would be asked to be responsible for all planning and execution of the lesson.
4. Co-operating teachers were not to be available for consultation for any aspect of this lesson.
5. Co-operating teachers were asked to observe, and record their observations of the lesson.
6. Co-operating teachers and student teachers recorded their perceptions of each other immediately following the intervention.

Co-operating teacher's role in the intervention

In an endeavour to minimize the sources of variance which are inherent in a study of this nature, the co-operating teacher's role in the intervention was as structured as circumstances would allow.

To ensure uniformity in behavior, the co-operating teacher was requested to provide the student teacher with his/her instruction kit for the lesson, two days prior to the intervention.

At the time of the intervention the co-operating teacher was asked to perform two tasks. Firstly the co-operating teacher was requested to ensure that there would be smooth transistion from whatever class activity was underway immediately prior to the lesson undertaken by the student teacher, and secondly, to observe the student teacher's lesson and mark the "Observation of Student Teacher's Lesson" questionnaire(Appendix A).

On the same day of the metrics lesson taught by the student teacher the co-operating teacher was requested to complete the My Student Teacher - Part 2 questionnaire and seal the completed questionnaire in the envelope provided for its return to the researcher.

Student teacher's role in the intervention

The student teacher's role in the intervention was determined to a large extent by the instructions he received in the kit supplied via the co-operating teacher two days

before the appointed time for the lessson. In these instructions the student teacher was asked to prepare for the metrics lesson by using the materials supplied in the kit. The student was asked to:

a) read the instructions for the exercise;

b) interpret the summary of the class' pre-test achievement on the Metrics Linear Measurement Test;

c) determine the objectives for the lesson by reference to the list of hierarchical objectives provided;

d) select a teaching strategy for the lesson;

e) select the content for the lesson from the metrics information provided; and

f) develop the teaching resources, aids for the lesson.

Two days after receiving the instruction kit the student teacher taught a thirty-minute lesson on metrics to the class. At the conclusion of this lesson the student teacher completed the My Co-operating Teacher questionnaire and sealed the completed questionnaire in the envelope provided for its return to the researcher.

Choice of metric linear measurement units for intervention

Popham (1971) discussed the rationale, development and validation of performance tests of teaching proficiency and noted, with respect to the choice of the topic for the test, that

> ...it should take 10 hours or less to teach... Second, to reduce the likelihood of previous student exposure to the material, the topic should not be currently taught in the schools. Third, the topic should require no specified set of student entry behaviors dependent upon previous instruction. Fourth, the topic should be able to be inserted logically at any point in the curriculum. A last requirement for the topic was that it be so acceptable to teachers that they would feel it important enough to employ (p. 108).

In the selection of metric linear measurement units for the study the researcher was aware of several aspects which favoured these units.

During the period 1975 - 1980 Canada will convert to the exclusive use of metric units, hence metric units are relevant to the elementary school curriculum. For this reason, co-operating teachers were aware of the need for the introduction of metrics into their classroom activities and welcomed the opportunity which was presented through the intervention. Pupils, too, were aware of the impending change to metrics, and their eventual need to learn the units.

The metric units suited the purposes of this research study, for, despite the high interest in metrics, the formal introduction and teaching of units had not begun in the classrooms being studied at the time of the intervention. Thus, not only were the units new material for the children but gains on the Metric Linear Measurement Test might logically be attributed to the intervention lesson. In addition, the nature of the units made them suitable for teaching to a range of pupil ability levels and to a range of teaching strategies chosen by student teachers.

Finally, from a computational aspect, the mathematical nature of the material lends itself to the measurement of change in pupils' scores.

For all of these reasons, it was believed that the inclusion of the units on Metric Linear Measurement as part of the normal ongoing classroom activities would be accepted by both co-operating teachers and pupils.

FIELD PROCEDURES

The field procedures for this study are presented below in order of occurrence.

Student teachers in this program began a part-time student assistantship with their co-operating teachers at least three weeks prior to the full-time student teaching experience.

The co-operating teachers who were to participate in the research study were approached early in the term before students began to spend full time with them in their classrooms. They were informed about the probable procedures and time commitment for their involvement in the study before being invited to participate in the study.

In the two week period before the commencement of full-time student teaching the co-operating teachers were supplied personally by the researcher with the kits detailing their involvement in the research project. The role of the co-operating teacher in the research was explained as clearly as possible through discussions which included reference to the supplied materials. Co-operating teachers completed the My Student Teacher - Part 1 questionnaire at the time of this discussion.

Three days before the commencement of the full-time student teaching experience the co-operating teachers used the instructions and MLMT tests supplied with the Co-

operating Teacher Kit to pre-test the pupils in their classes.

During the week prior to full-time student teaching, all student teachers in the Professional Diploma after Approved Degree program who were to be involved in the research attended a class conducted by their respective professors. The class introduced students to the variety of teaching methods described by Harmer(1969) in a chapter on "Teaching Methods".

During the week prior to full-time student teaching the researcher also advised students that the program they were in was to be evaluated and that some of them would be randomly chosen to be a part of the evaluation. Considerable effort was made by the researcher to assure student teachers that the evaluation was not intended as an assessment of their individual abilities.

During the first week that the student teachers were in the classrooms full-time, co-operating teachers were supplied with a kit of instructions to be given to the student teacher. Included in the kit were the pre-test results of the Metric Linear Measurement Test for the class to be taught(Appendix B). Instructions for the co-operating teacher regarding the issuing of the kits to the student

teacher were included in the Co-operating Teacher Kit with which they had been previously supplied.

On the first day of the second week of student teaching, the student teachers were supplied with their Student Teacher Kits by the co-operating teachers.

Two days after they had received these kits - on the third day of the second week of full-time student teaching - student teachers taught the Metrics lesson. Concurrent with this lesson, co-operating teachers observed the student teacher and recorded their perceptions of the lesson on the Observation of Student Teacher's Lesson Questionnaire supplied in the Co-operating Teacher's Kit.

Immediately subsequent to the intervention, student teachers and co-operating teachers completed the My Co-operating Teacher and My Student Teacher - Part 2 questionnaires, respectively.

On the fourth day of the second week of student teaching, the co-operating teachers administered the Metric Linear Measurement Test as a post-test. Pupils' scores from the post-test were collected by the researcher, processed, and feedback on the pupils' achievement was supplied to the co-operating teachers and student teachers by the first day

of the third week of student teaching.

The post-intervention discussion/interviews with student teachers were conducted by the researcher during the third and final week of the full-time student teaching experience.

During the week immediately following their return to campus, student teachers were administered the questionnaires designed to collect their demographic data.

In the two weeks following the completion of the student teaching period, discussion/interviews were conducted with the co-operating teachers in all schools.

The achievement data on children involved in the research were obtained from school records by the researcher soon after the intervention.

The materials for the research project were distributed and collected by the researcher. The target deadlines for completing each stage in the study were met.

DATA COLLECTION AND STATISTICAL ANALYSIS

The data for the study were collected in the following forms:

(a) Pre-test scores on the MLMT were obtained from co-operating teacher scored summaries of pre-test raw scores, derived from pupils' optical scoring sheets.

(b) Post-test scores on MLMT were obtained from co-operating teacher scored summaries of post-test raw scores.

(c) The My Student Teacher and Observation of Student's Lesson forms were submitted by co-operating teachers sealed in envelopes supplied in their kits. These forms were subsequently collated and scored by the researcher and three graduate students in Education.

(d) The My Co-operating Teacher forms were submitted by student teachers sealed in envelopes supplied in their kits. These forms were scored by the researcher using the marking key designed and validated by Yee (1968).

(e) The interviews with co-operating teachers and student teachers were tape recorded by the researcher. A schedule designed to provide a minimal structure for the interviews was used.

(f) Student teacher demographic data were provided by self-report questionnaires.

(g) The pupils' standardized test achievement data were obtained from the pupils' Cumulative Record Cards kept

in their respective schools.

SCORING PROCEDURES

The dependent variables for the study were measures of the achievement of the pupils according to grade. These were determined by means of pre- and post-tests scores on the Metric Linear Measurement Test developed by the researcher.

The measures of pupil achievement were developed from the raw gain scores for each class which were calculated by subtracting each pupil's pre-test score from his/her post-test score, summing these scores for the class then dividing the total by the number of children who completed the tests.

(a) The raw gain scores of all pupils for whom IQ scores were available were first used to determine the relationship between raw gain scores attainment on the MLMT and the IQ scores. No relationship between raw gain scores and IQ was found for those pupils for whom IQ scores were available.

(b) On the basis of this finding it was assumed that there was no relationship between the raw gain score

and IQ level of all participating children. Hence raw gain scores for all pupils who completed both the pre- and post-tests of the MLMT were used to develop ratings of achievement. The mean raw gain score for each class was compared with(a) the mean raw gain score for all classes in the same grade, and (b) the mean raw gain score for the sample. Each class' achievement was rated as positive(+) or negative(-) according to its position above or below both the grade and sample means, respectively.

Example:(Scores hypothetical)

Mean raw gain score (Class"X", Grade 4) = 23.6%

Mean raw gain score for all Grade 4 classes = 25.2%

Mean raw gain score for the sample = 23.2%

Grade rating for class score = 23.6 < 25.2 = negative(-)

Sample rating for class score = 23.6 > 23.2 = positive(+)

Thus for each class there were two ratings produced: (a) the class mean raw gain score compared to all mean scores for that grade, and (b) the class mean raw gain score compared to all mean scores for the sample.

(c) The use of post-test scores adjusted for pre-test attainment is an alternative method for developing achievement scores. In the present study there was a very low relationship between the pupils' pre- and post-test scores. If there had been sufficiently high correlation between pupils' pre- and post-test scores it was intended to

adjust scores by regression analysis techniques. However since the low correlation between pre- and post-test scores rendered this technique inappropriate the use of the raw gain score as one measure of pupil achievement was adopted.

(d) An additional measure of pupil achievement called the class "index of achievement" based on the pupils' raw gain scores was compiled in the following manner:

(i) Each pupil's raw gain score was rated according to an increase or decrease in the number of objectives they had scored correctly. A pupil whose raw gain score was two or more objectives higher on post-test than on pre-test was indexed as positive(+) whilst a pupil whose raw gain score was two or more objectives lower on post-test than on pre-test was indexed as negative(-). A pupil's post-test score which was either one objective above or below the pre-test score was judged to be inconclusive and was not included in this calculation.

(ii) The index of achievement for each class was calculated by use of the formula $(A-B)100/N$ where

A = Number of pupils in a class indexed as positive(+)

B = Number of pupils in a class indexed as negative(-)

N = Total of pupils in class who took both tests.

Example

Number of pupils indexed as positive ..... = 10

Number of pupils indexed as negative ..... = 6

Total of pupils in class who took both tests ... = 25

Index of Achievement = (A-B)100/N

= (10-6)100/N = 16.0

(iii) The index of achievement for each class was compared with the mean index of achievement for the classes of that grade, and with the mean index of achievement for the sample. The index of achievement for each class was twice rated as positive(+) or negative(-) when it was either above or below, respectively, the grade and sample means.

Example

Class index of achievement ..... = 16.0

Grade mean index of achievement ..... = 13.2
Class rating positive(+)

Sample mean index of achievement .... = 18.3
Sample rating negative(-)

The correlation between the mean raw gain score and the 'index of achievement' for each class was statistically significant (Pearson r = 0.79).

Consistent Gain Score

A Consistent Gain Score rating was developed from the two rating of each class's raw gain score relative to the grade and sample mean raw gain scores, and from the two ratings of the class's index of achievement rating relative

to the mean index of achievement scores for the grade and the sample. When all the ratings for a class relative to these four mean achievement measures were positive, the class was assigned to the Consistent High Gain group. When the four ratings for a class were all negative the class was assigned to the Consistent Low Gain group. Classes in which the ratings were not either all positive or all negative were assigned to the Inconsistent Gain Group.

Examples (a) Class Y

Rating relative to grade mean raw score ..... +

Rating relative to sample mean raw gain score ..... +

Rating relative to grade index of achievement ..... +

Rating relative to sample index of achievement .... +

Class Y assigned to Consistent High Gain Group

(b) Class Z

Rating relative to grade mean raw gain score ..... -

Rating relative to sample mean raw gain score ..... +

Rating relative to grade index of achievement ..... +

Rating relative to sample index of achievement .... +

Class Z assigned to Inconsistent Gain group

Data processing and statistical analysis

Machine calculations were made using the IBM 360/67 computer programs provided by the Division of Educational Research Services of the University of Alberta.

Optical scoring sheets (General Purpose Answer Sheet 1) were used for pupils' responses on both tests of the Metric Linear Measurement Test. These sheets were machine scored and punched.

Appropriate computer programs were used to calculate:

a) gain scores from pre- and post-test raw scores.

Pearson correlations between achievement (gain scores) and I.Q. scores.

c) Pearson correlations between pre-test and post-test scores on the MLMT.

d) Pearson correlations among co-operating teacher and student teacher demographic variables; My Student Teacher and My Co-operating Teacher questionnaire responses; and, the dependent variable.

Additional calculations by the researcher included:

a) Kruskal-Wallis one-way analysis of variance by ranks for determining the degree of association between pupil achievement and

i. the valences of the student teaching dyads, and

ii. the teaching strategies used for the

intervention.

The Kruskall-Wallis test is a most suitable non-parametric technique for determining whether

> ...the differences among the samples signify genuine population differences or whether they represent merely chance variations such as are to be expected among several random samples from the same population(Siegel, 1956, p.184).

b) Fisher Exact Probability Tests for determining the relationship between pupil achievement and

i. the rating determined by the co-operating teacher's responses on the My Student Teacher questionnaire,

ii. the rating determined by the student teacher's responses on the My Co-operating Teacher questionnaire, and

iii. the dyad "balance" or "imbalance" relationships indicated by the valences (++,--) and (+-,-+), respectively.

The Fisher Exact Probability Test is a useful non-parametric test for two independent samples. Siegel(1956) notes that it is used

> ...when the scores from two independent random samples all fall into one or the other of two mutually exclusive classes(p.96).

Subjective Ratings

Three items on the My Student Teacher questionnaire(Part 1: nos.4 & 5; Part 2: no. 3) elicited comments about specific aspects of the program, hence required subjective assessments. In order to provide an unbiased judgment of these items , three doctoral students in Education who were not associated with either this research or the Professional Diploma program were asked to assess the scores for these items on a seven point scale ranging from "very unsatisfactory" to "very satisfactory". Subsequent to the marking of these items the inter-rater reliability of these markers was determined using the Spearman rank correlation co-efficient test. The calculated Spearman correlation(rho=0.73) was considered to indicate a satisfactory level of inter-rater reliability.

The lesson plans produced for the metrics lesson were subjectively rated by two graduate students in Education and the researcher. A proforma developed by Oberg(1975) was used to rate the lesson plans(Appendix F). The degree of agreement among raters was subsequently calculated as 69% agreement.

Summary

This chapter has described the choice of the research design and the development of the research methodology. The assumptions which supported the research methodology have been stated and the limitations pertinent to this educational research on student teaching have been acknowledged.

The selection of co-operating teachers and student teachers and their respective roles in the intervention have also been described. The intended use of the kits which were developed to gather information about the intervention has been presented in detail.

Finally, the field procedures including the development of the instrumentation and the manner of data collection, the collation and scoring of data from these instruments, and the statistical analyses, have been outlined.

CHAPTER IV

RESULTS OF THE INVESTIGATION

The study was primarily intended to discover whether there is a relationship between the nature of the student teaching dyad (consisting of a co-operating teacher and an intending teacher), and pupil achievement.

In order to do so, specific investigations were undertaken (1) to describe the relationships within different types of student teaching dyads; (2) to discover whether student teacher performance can be related to the level of pupil achievement; and (3) to examine the relationship between student teacher performance as reflected in pupil achievement and the particular nature of the student teaching dyad. The results of these investigations are reported in this chapter.

RELATIONSHIPS WITHIN STUDENT TEACHING DYADS

The relationships within the student teaching dyads were measured using two sets of perceptions: firstly, the co-operating teacher's perceptions of the student teacher as a person, his academic adequacy and commitment as

an intending teacher, and his teaching competence as a student teacher; secondly, the student teacher's perception of the co-operating teacher on the dimensions of affective merit, cognitive merit and general merit.

Ratings for both the teacher and student members of the student teaching dyad were determined by questionnaires developed originally by Yee(1967). Co-operating teachers indicated their relationships with student teachers using a two-part questionnaire(Appendix A).

Part 1 of this questionnaire was administered by the researcher to co-operating teachers prior to the commencement of full day student teaching experience for the student teachers. This questionnaire obtained demographic data about the co-operating teacher, and his attitudes for student teaching in general.

Part 2 of this questionnaire was self-administered by the co-operating teachers immediately following the conclusion of the student teacher's intervention. This questionnaire elicited the co-operating teacher's perceptions of , and attitudes toward the student teacher as "student teacher".

Student teachers' responses were determined by use of the "My Co-operating Teacher" questionnaire, also developed by Yee(1967). The affective merit section of this

questionnaire measures the degree to which

> ...a supervisor or co-operating teacher is seen as effective in helping student teachers satisfy their social and emotional needs, especially through providing a warm and supportive personal relationship(Yee, 1967, p.27).

The cognitive merit section of the questionnaire measures the degree to which

> ...a supervisor or co-operating teacher is seen as effective in helping the student to achieve the cognitive, intellectual, subject-matter objectives of school learning (Yee, 1967, p.27).

The third section of the questionnaire concerned the general merit of the relationship between the student teacher and the co-operating teacher. This section measures the extent that

> ...a supervisor or co-operating teacher is liked or disliked, generally speaking, and without the specification of any particular kind of reason for the like or dislike (Yee, 1967, p.27).

Items concerning the three dimensions of the questionnaire were distributed randomly throughout the questionnaire (see Appendix G).

In order to describe the relationship within the dyad, ratings of positive(+) and negative(-) were assigned to the total scores on the My Student Teacher questionnaire and My Co-operating Teacher questionnaire for each dyad. These ratings were determined by comparing the total raw score of each member's questionnaire with the mean score of all co-operating teachers or all student teachers, as

appropriate. Raw scores which were above the mean were rated positive(+) whilst those scores below the mean were rated negative(-). A valence for each dyad was formed by combining the rating of the co-operating teacher for the student teacher with the student teacher's rating of the co-operating teacher. The distribution of these ratings and valences determined by use of the My Co-operating Teacher and My Student Teacher questionnaires is presented in Table 1 .

PUPIL ACHIEVEMENTS

The second research problem concerned the measurement of pupil cognitive achievements following the structured interventions.

The dependent variable for the study was pupil cognitive achievement as determined by pre- and post-testing with the Metric Linear Measurement Test as prepared by the researcher (Appendix A). Classes were assigned to Consistent High Gain, Consistent Low Gain and Inconsistent Gain groups on the basis of the pupils' raw gain scores, using scoring procedures as outlined(Chapter 3). The distribution of ratings of achievement are presented in Table 2.

TABLE 7

DISTRIBUTION OF RATINGS AND VALENCES WITHIN THE STUDENT TEACHING DYADS

	RATINGS + Positive	RATINGS - Negative	N
Co-operating teacher's perception of the student teacher	29	10	39
Student teacher's perception of the co-operating teacher	23	19	42

	VALENCES ++	+-	-+	-- *	N
Total number of dyads	15	14	6	4	39

* The first rating within each valence is the co-operating teacher's rating of the student teacher.

TABLE 2

DISTRIBUTION OF CLASSES ACCORDING TO PUPIL ACHIEVEMENT

GRADE	PUPIL ACHIEVEMENT BY CLASSES			N
	High	Low	Inconsistent	
4	2	1	10	13
5	5	4	7	16
6	4	4	5	13
Total number of classes	11	9	22	42

STUDENT TEACHER PERFORMANCE AND DYAD RELATIONSHIPS

The third research problem concerned the relationships between student teacher performance related to pupil achievement, and the nature of the relationship between the co-operating teacher and the student teacher in each dyad. In this analysis the teaching performance or skill of the student teacher is described in terms of pupil achievement scores.

This aspect of the study has been separated into four sections in order to isolate and illustrate critical relationships. These sections are:

(a) Student teacher performance and the nature of each student teaching dyad.

(b) Student teacher performance and co-operating teacher ratings of student teachers.

(c) Student teacher performance and student teacher ratings of co-operating teachers.

(d) Student teacher performance and the balance of the dyads.

Student teacher performance and the nature of each student teaching dyad

The valences for dyads associated with pupils

achieving Consistent Gain scores and the ratings of achievement for these dyads are presented in Table 3.

In order to determine the degree of association between pupil achievement and dyad valences the Kruskall-Wallis One Way Analysis of Variance Test(Siegel,1956,pp.184-193) was used with High and Low scores. The H value(H = 1.75) for this distribution was non significant, indicating that the distribution of achievement/dyad valence relationships could have occurred by chance.

Student teacher performance and co-operating teacher ratings of student teachers

The perceptions of co-operating teachers of their relationships with their student teachers were compiled into a contingency table with high and low achievement categories along one axis , and positive and negative valences along the other axis(Table 4).

The Fisher Exact Probability Test was used (Siegel,1956,pp.96-104). The table of probabilities showed this distribution to have occurred by chance.

TABLE 3

DISTRIBUTION OF DYAD COMPOSITE VALENCES AND CLASSES WITH CONSISTENT PUPIL ACHIEVEMENT

COMPOSITE VALENCE		PUPIL ACHIEVEMENT BY CLASSES			N
Co-operating teacher	Student teacher	High	Low	Inconsistent	
+	+	6	4 *	5	15
+	-	2	0	10	12
-	+	1	2	1	4
-	-	1	3	4	8
Total number of classes		10	9	20	39

* Kruskal-Wallis One Way Analysis of Variance Test
H = 1.75 (n.s.d.)

TABLE 4

CO-OPERATING TEACHER'S PERCEPTIONS OF STUDENT TEACHERS COMPARED WITH LEVEL OF CONSISTENT PUPIL ACHIEVEMENT

CO-OPERATING TEACHERS PERCEPTIONS OF THE STUDENT TEACHER	CONSISTENT PUPIL ACHIEVEMENT			N
	High	Low		
Student teachers rated above the mean(+)	8	4	*	12
Student teachers rated below the mean(-)	2	5		7
Total number of classes	10	9		19

* Fisher Exact Probability Test (n.s.d.)

Student teacher performance and student teacher ratings of their co-operating teachers

Student teachers' perceptions of their relationships with their co-operating teachers were also compiled and are shown in Table 5.

The Fisher Exact Probability Test was used to determine the degree of association between ratings for the perceptions of co-operating teachers, and class achievement. The table of probabilities showed that the distribution did not reach a significant level of occurrence.

Student teacher performance and dyad balance

The relationships between pupil achievement and the balance of relationships within each student teaching dyad were compiled in a contingency table indicating balance and imbalance on one axis, and high and low consistent pupil achievement on the other axis(Table 6).

Statistical analysis of this distribution using the Fisher Exact Probability Test tables indicated that the distribution did not differ significantly from chance occurrence.

TABLE 5

STUDENT TEACHER'S PERCEPTIONS OF CO-OPERATING TEACHERS COMPARED WITH LEVEL OF CONSISTENT PUPIL ACHIEVEMENT

STUDENT TEACHER'S PERCEPTIONS OF THE CO-OPERATING TEACHER	CONSISTENT PUPIL ACHIEVEMENT			N
	High	Low		
Co-operating teachers rated above the mean (+)	7	6	*	13
Co-operating teachers rated below the mean (-)	4	3		7
Total number of classes	11	9		20

*Fisher Exact Probability Test (n.s.d.)

TABLE 6

BALANCE WITHIN STUDENT TEACHING DYADS COMPARED WITH CONSISTENT PUPIL ACHIEVEMENT

BALANCE OF DYADS		CONSISTENT PUPIL ACHIEVEMENT		N
		High	Low	
Balance	+ + - -	7	7 *	14
Imbalance	+ - - +	3	2	5
Total of student teaching dyads		10	9	19

* Fisher Exact Probability Test (n.s.d.)

CORRELATIONS WITHIN PUPIL ACHIEVEMENT GROUPS

To investigate possible influences upon pupil achievement, information about each student teacher and co-operating teacher was analyzed.

Experience as a teacher and co-operating teacher

Information about the co-operating teacher's years as a teacher; the number of student teachers supervised; the number of faculty consultants with whom the teacher had been professionally associated; the perceived value of student teaching; and, a general comment of the quality of student teachers they had supervised was related to the performance of the student teacher as reflected in the class achievement scores.

The co-operating teachers associated with pupils in Consistent High Gain groups had (a) fewer years as a teacher, (b) more experience with student teachers and faculty consultants, and (c) placed lower value on student teaching and student teachers in general than did co-operating teachers associated with the Consistent Low Gain group.

The co-operating teachers' demographic factors did

not correlate with pupil achievement scores for the Consistent Low Gain and Inconsistent Gain groups (Table 7). The co-operating teacher's perception of the value of student teaching correlated negatively (r = -0.69) with pupil achievement in the Consistent Low Gain classes.

Co-operating teacher perceptions of student teachers

The My Student Teacher - Part 2 questionnaire elicited co-operating teachers' perceptions about the relationships existing among the co-operating teacher, the student teacher, the faculty consultant and the pupils in the class. Additionally it gauged the co-operating teachers' perceptions of specific teaching aspects of his /her student teacher.

The co-operating teacher's responses about the student teacher did not correlate highly with pupil achievement for any of the three groups.

The co-operating teachers whose pupils were classified into the Consistent High Gain group consistently rated their student teachers higher than either of the other groups of co-operating teachers rated their own student teachers(Table 7).

TABLE 7

MEANS AND STANDARD DEVIATIONS OF QUESTIONNAIRE RESPONSES

	QUESTIONNAIRE ITEMS	PUPIL ACHIEVEMENT BY CLASSES: Consistent High		Consistent Low		Inconsistent	
		MEANS	S.D.	MEANS	S.D.	MEANS	S.D.
	MY STUDENT TEACHER - PART 1 questionnaire						
1	Years as a teacher	8.81	4.15	10.33	10.43	6.68	6.02
2	Number of student teachers supervised	10.45	8.63	6.63	5.59	5.50	4.10
3	Number of fac. consultants associated with	5.81	3.56	4.88	5.60	2.90	2.93
4	Value of student teaching experience	4.59	0.87	4.85	0.80	5.06	0.93
5	General quality of student teachers supervised	4.32	1.19	5.45	0.29	5.01	1.03
	MY STUDENT TEACHER - PART 2 questionnaire						
6	General view of student teacher	5.18	1.89	4.44	1.83	4.50	1.69
7	S.T's relations with pupils	4.90	1.73	4.55	1.77	4.77	1.80
8	S.T's. relations with co-operating teacher	5.27	1.95	5.44	2.16	5.31	1.98
9	Relations with faculty consultant	4.45	2.35	3.00	3.01	2.63	2.56
10	Subject matter knowledge	4.63	2.42	4.77	1.81	4.54	1.72
11	Commitment to teaching	5.27	2.17	4.66	2.44	5.13	2.00
12	Energy and drive	5.27	2.17	4.66	2.16	4.18	1.89
13	Teaching skills	4.71	1.76	4.55	2.11	4.27	1.62
14	Originality, creative ability	4.81	1.80	3.88	1.96	4.27	1.68
15	Rating of lesson by co-operating teacher	4.63	1.82	3.97	1.89	4.27	1.65
16	Total "My Student Teacher" questionnaire	49.18	17.36	43.86	18.88	44.36	16.23
17	Final grade, if C.T. were fac. consultant	5.72	2.89	3.66	3.36	5.36	2.68
	Observation questionnaire						
18	Clarity of presentation	5.18	1.11	4.33	1.56	4.27	1.76
19	Variety of use of techniques, materials	4.81	1.26	4.00	1.82	5.59	1.55
20	Task orientation of teaching behaviors	5.23	0.86	5.66	1.24	4.59	1.87
21	Degree of pupil activity	5.45	0.98	4.66	1.70	4.27	1.71
22	Total of observation questionnaire	20.72	3.13	18.66	3.43	16.72	6.15
23	Co-operating teacher's rating of lesson	5.09	0.90	5.00	1.15	4.13	1.57
	MY CO-OPERATING TEACHER questionnaire						
24	Affective merit dimension	7.09	1.97	8.22	0.62	7.09	1.70
25	Cognitive merit dimension	10.36	2.01	10.77	1.39	9.68	2.09
26	General merit dimension	9.09	2.67	10.11	0.73	8.40	1.77
27	Total My Co-operating Teacher q'naire	26.54	6.40	29.11	2.51	25.18	4.35

TABLE 7 - continued

MEANS AND STANDARD DEVIATIONS OF QUESTIONNAIRE RESPONSES

	QUESTIONNAIRE ITEMS	PUPIL ACHIEVEMENT BY CLASSES: Consistent High		Consistent Low		Inconsistent	
		MEANS	S.D.	MEANS	S.D.	MEANS	S.D.
	Student teacher responses about the study						
28	S.T. conviction for metric changeover	3.81	1.19	3.44	1.89	3.95	1.46
29	Agreement with manner of presentation	1.90	1.09	2.00	1.33	2.18	1.15
30	Effect of lesson on C.T./S.T. relationship	3.81	0.93	2.33	1.33	3.00	1.08
31	Influence of lesson on term evaluation	2.90	1.16	1.66	1.15	2.27	1.38
32	C.T. reaction to metric lesson	3.00	1.12	2.11	1.37	2.27	1.17
33	Use of lesson to evaluate S.T.	2.00	1.34	1.44	1.16	2.27	1.45
34	Interpretation objs./pre-test relationship	4.45	0.98	3.00	1.76	3.68	1.32
35	Adequacy of information in kit	3.63	0.97	2.88	1.72	3.00	1.27
36	Influence of "Teaching Strategies"	1.81	0.83	1.66	1.33	2.68	1.48
37	Prior knowledge of metrics	2.27	1.13	2.55	1.89	2.27	1.48
38	Ease of teaching metrics	3.72	0.86	2.33	1.82	2.68	1.25
39	Knowledge of metrics at time of lesson	3.54	0.98	2.44	1.70	3.09	1.37
40	S.T's. rating of lesson	6.00	2.00	4.11	2.88	4.13	2.30
41	Comparison of lesson preparation	3.36	0.64	2.33	1.33	3.04	1.22
42	Requirement to provide lesson plans	2.45	1.37	2.00	1.63	2.04	1.36
43	Lesson as reflection of teaching ability	3.45	1.23	2.22	1.47	2.09	1.12
44	Interpretation of objs. as hierarchical	2.72	1.13	2.11	1.66	2.81	1.49
45	Conviction to be a teacher	3.90	1.08	3.22	1.81	4.04	1.36
46	Confidence as a teacher	3.72	0.96	2.66	1.70	3.59	1.30
47	Number of Science courses	2.00	2.33	2.77	4.04	2.95	2.94
48	Number of Mathematics courses	2.72	5.17	0.44	0.95	1.59	2.85
49	Number of Arts courses	10.54	5.72	9.22	6.17	9.59	4.65
	OBJECTIVE RATING OF LESSON PLAN						
50	Rating of lesson plan	6.44	2.57	6.56	3.78	5.67	3.68
	PUPIL ACHIEVEMENT						
51	Pupil achievement - raw gain	25.37	6.35	17.11	19.21	15.62	5.16
52	Pupil achievement - index of achievement	82.81	8.65	42.11	12.24	58.31	14.63

The positive perceptions of co-operating teachers about student teachers whose pupils were in Consistent High Gain groups were strongly related with the high level of their student teacher's performance. For student teachers whose pupils were included in the Consistent Low Gain and Inconsistent Gain groups this level of co-operating teacher perception of student teachers was not apparent.

High correlations were found between responses from co-operating teachers and student teachers with pupils who demonstrated Consistent High Gain scores, as indicated by (a) the My Co-operating Teacher questionnaire responses and (b) the student teacher's sense of conviction about becoming a teacher, and confidence as a teacher(Table 8).

High correlations for student teachers whose pupils achieved Consistent Low Gain scores were evidenced between the co-operating teacher's perception of the student teacher and with the final rating of the schedule used to observe the student teacher's lesson(Table 9).

High positive intercorrelations among the co-operating teacher's perceptions for the student teachers are found for classes in which pupils achieved Inconsistent Gain scores. These items also correlated positively with the items of the observation questionnaire(Table 10).

TABLE 8

INTERCORRELATIONS AMONG CO-OPERATING TEACHER AND STUDENT TEACHER QUESTIONNAIRE RESPONSES WITHIN CONSISTENT HIGH GAIN GROUP

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Consistent High Gain Group											
	6	7	8	9	10	11	12	13	14	15	16	17
MY STUDENT TEACHER - PART 2												
6 General view of student teacher	1.00											
7 S.T's. relations with pupils	.91	1.00										
8 S.T's. relations with co-operating teacher	.87	.89	1.00									
9 Relations with faculty consultant	.53	.59	.68	1.00								
10 Subject matter knowledge	.62	.51	.40	.10	1.00							
11 Commitment to teaching	.91	.82	.77	.50	.58	1.00						
12 Energy and drive	.95	.92	.87	.56	.48	.88	1.00					
13 Teaching skills	.93	.91	.81	.68	.55	.91	.91	1.00				
14 Originality, creative ability	.91	.87	.86	.51	.59	.75	.89	.84	1.00			
15 Rating of lesson by co-operating teacher	.87	.82	.75	.42	.68	.93	.79	.85	.68	1.00		
16 Total "My Student Teacher" questionnaire	.97	.94	.90	.64	.64	.92	.94	.96	.90	.89	1.00	
17 Final grade, if C.T. were fac. consultant	.67	.57	.71	.31	.34	.67	.66	.59	.79	.59	.68	1.00
MY CO-OPERATING TEACHER												
24 Affective merit dimension	.79	.85	.79	.40	.42	.84	.77	.79	.77	.81	.82	.78
25 Cognitive merit dimension	.69	.81	.73	.33	.51	.68	.66	.69	.77	.70	.75	.73
26 General merit dimension	.46	.59	.61	.22	.31	.51	.40	.44	.53	.58	.52	.69
27 Total MCT questionnaire	.65	.76	.73	.32	.42	.68	.61	.65	.70	.71	.71	.76
STUDENT TEACHER RESPONSES ABOUT STUDY												
45 Conviction to be a teacher	.71	.52	.44	.26	.43	.78	.62	.70	.45	.74	.65	.36
46 Confidence as a teacher	.87	.91	.76	.57	.58	.81	.81	.92	.86	.78	.90	.62
PUPIL ACHIEVEMENT												
52 Pupil achievement - index of achievement	.48	.53	.51	.59	.01	.63	.53	.63	.43	.50	.55	.53

* Variables #6-17 on the horizontal axis correspond to variables #6-17 on vertical axis.

TABLE 9

INTERCORRELATIONS AMONG CO-OPERATING TEACHER AND STUDENT TEACHER QUESTIONNAIRE RESPONSES WITHIN CONSISTENT LOW GAIN GROUP

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Consistent Low Gain Group											
	6	7	8	9	10	11	12	13	14	15	16	17
MY STUDENT TEACHER - PART 2												
6 General view of student teacher	1.00											
7 S.T's. relations with pupils	.98	1.00										
8 S.T's relations with co-operating teacher	.81	.89	1.00									
9 Relations with faculty consultant	.62	.62	.52	1.00								
10 Subject matter knowledge	.86	.90	.87	.30	1.00							
11 Commitment to teaching	.92	.86	.67	.52	.75	1.00						
12 Energy and drive	.90	.86	.72	.40	.83	.96	1.00					
13 Teaching skills	.96	.92	.74	.57	.81	.98	.96	1.00				
14 Originality, creative ability	.93	.87	.66	.54	.74	.96	.93	.97	1.00			
15 Rating of lesson by co-operating teacher	.71	.67	.59	.61	.53	.76	.77	.76	.65	1.00		
16 Total "My Student Teacher" questionnaire	.98	.96	.84	.67	.84	.94	.93	.97	.92	.80	1.00	
17 Final grade, if C.T. were fac. consultant	.60	.55	.41	.30	.37	.63	.59	.68	.73	.40	.59	1.00
OBSERVATION QUESTIONNAIRE												
23 Co-operating teacher's rating of lesson	.68	.59	.31	.57	.47	.78	.71	.77	.73	.67	.71	.45

* Variables #6-17 on the horizontal axis correspond to variables #6-17 on vertical axis.

TABLE 10

INTERCORRELATIONS AMONG CO-OPERATING TEACHER AND STUDENT TEACHER QUESTIONNAIRE RESPONSES WITHIN INCONSISTENT GAIN GROUP

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Inconsistent Gain Group											
	6	7	8	9	10	11	12	13	14	15	16	17
MY STUDENT TEACHER - PART 2												
6 General view of student teacher	1.00											
7 S.T's. relations with pupils	.95	1.00										
8 S.T's. relations with co-operating teacher	.93	.90	1.00									
9 Relations with faculty consultant	.29	.33	.31	1.00								
10 Subject matter knowledge	.90	.90	.93	.32	1.00							
11 Commitment to teaching	.94	.91	.97	.28	.91	1.00						
12 Energy and drive	.91	.87	.94	.16	.87	.96	1.00					
13 Teaching skills	.93	.91	.90	.16	.88	.92	.92	1.00				
14 Originality, creative ability	.89	.87	.85	.19	.85	.86	.89	.95	1.00			
15 Rating of lesson by co-operating teacher	.85	.92	.85	.29	.83	.88	.86	.87	.83	1.00		
16 Total "My Student Teacher" questionnaire	.95	.96	.95	.43	.94	.95	.92	.93	.90	.91	1.00	
17 Final grade, if C.T. were fac. consultant	.68	.65	.79	.26	.74	.69	.68	.68	.65	.60	.71	1.00
OBSERVATION QUESTIONNAIRE												
18 Clarity of presentation	.74	.79	.81	.35	.78	.73	.70	.67	.63	.78	.79	.74
19 Variety of use of techniques, materials	.69	.72	.71	.24	.72	.65	.66	.72	.71	.65	.73	.64
20 Task orientation of teaching behaviors	.76	.75	.71	.07	.68	.74	.77	.81	.71	.77	.73	.66
21 Degree of pupil activity	.72	.75	.71	.30	.79	.70	.74	.75	.77	.69	.79	.68
22 Total of Observation questionnaire	.82	.84	.81	.27	.84	.79	.81	.83	.79	.81	.85	.76
23 Co-operating teacher's rating of lesson	.84	.84	.81	.21	.77	.82	.86	.81	.80	.80	.84	.64

* Variables #6-17 on the horizontal axis correspond to variables #6-17 on vertical axis.

Observation of student teacher's lesson

Co-operating teachers were asked to observe and rate their student teacher's metric lesson for clarity of presentation, variety of the use of techniques and materials, the student teacher's task orientation, and the degree of pupil activity. In addition they were requested to rate the lesson from "very poor" to "excellent" on a seven point scale(Appendix A).

Pupil achievement did not correlate highly with any co-operating teacher responses on the observation schedule for any of the three groups.

Co-operating teachers whose pupils were assigned to the Consistent High Gain group consistently rated their student teachers higher on the items of the observation questionnaire than did either other group of co-operating teachers (Items 18 to 23, Table 7).

For student teachers associated with pupils in Consistent High Gain groups, their co-operating teachers' ratings of the clarity of the presentation of the metrics lesson correlated with their positive attitudes toward the student teachers and with the student teachers' expressed conviction for teaching and confidence as a teacher

(Table 11). The same item also correlated with the total rating assigned to the lesson observation by the co-operating teacher.

For student teachers associated with the Consistent Low Gain group of pupils several correlations with co-operating teacher ratings emerged. The clarity of presentation correlated negatively with the variety of presentation and materials used. The items measuring the directiveness of the presentation, the activity of the pupils, and the total of the four aspects on this questionnaire, correlated negatively with the raw gain measure of pupil achievement (Table 12).

The reponses about student teachers associated with pupils in the Inconsistent Gain group were clear. All items, including the total for the observation questionnaire were highly correlated with the co-operating teachers' perceptions of the student teachers with the exception of the item gauging the relationships between the student teacher and the faculty consultant(Table 10).

Student teacher perceptions of co-operating teachers

The My Co-operating Teacher questionnaire (Yee, 1967) was designed to elicit information about the student

TABLE 11

INTERCORRELATIONS AMONG CO-OPERATING TEACHER OBSERVATIONS
AND STUDENT TEACHER REACTIONS
FOR CONSISTENT HIGH GAIN GROUP

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER PERCEPTIONS * Consistent High Gain Group					
	18	19	20	21	22	23
OBSERVATION QUESTIONNAIRE						
18 Clarity of presentation	1.00					
19 Variety of use of techniques, materials	.08	1.00				
20 Task orientation of teaching behaviors	.42	.37	1.00			
21 Degree of pupil activity	.42	.57	.60	1.00		
22 Total of observation questionnaire	.63	.72	.76	.86	1.00	
23 Co-operating teacher's rating of lesson	.34	.73	.78	.87	.91	1.00
STUDENT TEACHER'S REACTIONS						
45 Conviction to be a teacher	.54	.38	.31	.29	.52	.28
46 Confidence as a teacher	.81	-.04	-.02	.03	.27	-.07

* Variables #18-23 on the horizontal axis correspond to variables #18-23 on vertical axis.

TABLE 12

INTERCORRELATIONS AMONG CO-OPERATING TEACHER RESPONSES
ON THE OBSERVATION QUESTIONNAIRE
FOR CONSISTENT LOW GAIN GROUP

QUESTIONNAIRE ITEMS	PUPIL ACHIEVEMENT BY CLASSES Consistent Low Gain Group					
	18	19	20	21	22	23
OBSERVATION QUESTIONNAIRE						
18 Clarity of presentation	1.00					
19 Variety of use of techniques, materials	-.50	1.00				
20 Task orientation of teaching behaviors	-.34	.43	1.00			
21 Degree of pupil activity	-.33	.35	.78	1.00		
22 Total of observation questionnaire	-.10	.63	.83	.81	1.00	
23 Co-operating teacher's rating of lesson	-.43	.89	.61	.67	.84	1.00
PUPIL ACHIEVEMENT						
51 Pupil achievement - raw gain	.21	-.26	-.50	-.58	-.51	-.36

* Variables #18-23 on the horizontal axis correspond to variables #18-23 on vertical axis.

teacher's perceptions of the co-operating teacher along three dimensions labelled affective merit, cognitive merit and general merit were distributed randomly throughout the questionnaire (Appendix G).

The student teachers associated with classes in which pupils had Consistent Low Gain scores rated their co-operating teachers marginally higher on these three dimensions than the student teachers in the other groups rated their co-operating teachers (Items 24 to 27, Table 7).

The responses by student teachers whose pupils were in the Consistent High Gain group correlated highly and positively with co-operating teacher responses about their student teachers. In addition there were high positive correlations with a measure of student teacher's expressed confidence. The responses for these student teachers about their co-operating teacher's affective and cognitive merits also correlated with the index of achievement measure (Table 8).

The responses by student teachers whose pupils were in the Consistent Low Gain group correlated negatively ($r = -0.51$) with one of the measures of pupil achievement. The affective merit credited to the co-operating teachers of these student teachers correlated with the low self rating

of the student teacher's confidence, and with the value the co-operating teacher placed on student teaching. These student teacher responses about the general merit of their co-operating teacher correlated with the minimal degree they thought the metrics lesson would be used to evaluate them (Table 7).

Student teachers whose pupils are in the Inconsistent Gain group credited their co-operating teachers with similar ratings on the affective and cognitive merit dimensions but with different ratings for their general merit. Each item did, however, correlate with the total score (Table 7).

Student teacher perceptions of the study

Responses to the self-administered "Student Teacher Information" questionnaire reflect the student teacher's perceptions about the study, after their return to campus.

There was considerable uniformity of responses about aspects of the study for the student teachers whose pupils were in the Consistent Low Gain and Inconsistent Gain groups but there was no similar uniformity of responses for student teachers whose pupils were associated with

Consistent High Gain scores. For the Consistent Low Gain group there was 83% of possible intercorrelations, for the Inconsistent Gain group there was 50% of intercorrelations but for the Consistent High Gain group there was only 20% of intercorrelations among these items (Appendix E-8 to E-15).

Student teacher attitudes toward the introduction of metrics

Student teacher attitudes toward the introduction of metrics into Canadian schools were reflected in responses to two items on the questionnaire completed after the practicum experience had concluded. The ratings of these items by all three groups of student teachers were similar (Items 28 to 29, Table 7).

The items which measured the student teacher's conviction about the need to change to the metrics system in Canada, and the degree of student teacher's agreement with the manner in which they were asked to introduce the metric system, did not correlate positively with pupil achievement for any of the three groups. There is, however, a high negative correlation ($r = -0.59$) with pupil achievement for student teachers whose pupils are in the Consistent High Gain group and the student teacher's opinion of the necessity for the introduction of metrics.

Effects of the metrics lesson on the relationship with the co-operating teacher

The responses for these items show that the student teachers whose pupils were assigned to Consistent High Gain groups perceived that the metric lesson would have a significantly different, more positive effect on their relationship with the co-operating teacher than was perceived by the student teachers of the other groups (Items 30 to 33, Table 7).

The only correlation between items rating the effects of the metric lesson on the student teacher's relationship with the co-operating teacher and other factors in the study were with the student teachers whose pupils were in the Inconsistent Gain group. For this group a positive correlation ($r = 0.50$) between the effect of the lesson and pupil achievement was found.

Student Teacher's Kit

Student teachers were asked to rate the adequacy and extent to which they used the Student Teacher's Kit for their lesson. The results indicate that the teaching strategies suggested in the kit were not related to levels of pupil achievement.

Student teachers with pupils in the Consistent High Gain group rated their interpretation of the relationship between the objectives for the lesson and the pre-test scores, as well as the adequacy of the information of the kits as significantly more positive than student teachers with pupils in Consistent Low Gain groups (Items 34 to 35, Table 7).

Knowledge of metrics

For student teachers whose pupils were associated with Inconsistent Gain groups there was a high positive correlation ($r = 0.52$) with pupil achievement and the ease the student teachers reported they had in the teaching of the metrics lesson.

The student teachers' ratings on these items indicate that student teachers with pupils in Consistent High Gain groups perceived their ease of teaching metrics and knowledge of metrics to be significantly better than student teachers whose pupils were in Consistent Low Gain groups (Items 37 to 39, Table 7).

For the student teachers with pupils in the Consistent High Gain groups there was high congruence

between the co-operating teacher's perception of the student teacher's subject matter knowledge with the student teacher's own rating of his knowledge at the time of the metrics lesson (Items 10 and 39, Table 7).

Student teacher's rating of metrics lesson and its preparation

Student teachers whose pupils achieved Consistent High Gain scores rated their lesson and its preparation higher than both other groups, and significantly higher than student teachers with pupils in the Consistent Low Gain group, as well as rating the lesson in accordance with the rating assigned to the lesson by the co-operating teacher (Items 40,41 and 15, Table 7).

Student teacher's conviction and confidence

For the student teachers whose pupils were in the Consistent High Gain and Inconsistent Gain groups there was a strong correlation between their level of confidence and the achievement of the pupils (Table 8).

The ratings by student teachers with Consistent High Gain groups of pupils of their own conviction of their suitability as a teacher, and their confidence as a teacher

were considerably higher than for the student teacher with pupils in the Consistent Low Gain group (Items 45 to 46, Table 7).

Student teacher academic preparation

Student teachers were asked to list the number of Science, Mathematics and Art courses they had completed prior to joining the Diploma program.

The number of Science, Mathematics and/or Arts courses taken by a student before joining the program was not related to pupil achievement.

Student teachers whose pupils had Consistent High Gain scores had completed more Mathematics courses whilst student teachers with pupils achieving Consistent Low Gain scores had had fewest courses (Items 47 to 49, Table 7).

Reaction of personnel to study

Co-operating teachers were generally in favour of the study although five teachers, three in one school, refused to record their perceptions of their student teachers because they considered the information required was too evaluative of the student teachers. In a second

school, four teachers expressed their displeasure at the use of the one lesson to gauge the teaching ability of their student teachers(Appendix D).

Student teachers commented that they did not like the additional work required of them, and that they would not receive credit for their involvement in the study. They also expressed a concern that there were evaluative overtones for the lesson, regardless of statements to the contrary from either their co-operating teacher or the researcher.

SUMMARY

Responses by co-operating teachers and student teachers have been reported in this chapter. These responses were correlated with measures of pupil achievement. Relationships distinguishing the different types of student teaching dyads were identified. In addition, the relationships within the student teaching dyads were examined using student teacher perceptions about the study. The use of the student teacher perceptions about the study in conjunction with information about the dyads revealed the relationships better than either of the sets of data used separately. Relationships within the student teaching dyads varied considerably. Analysis of groups

formed on the basis of pupil achievement revealed patterns of relationships existing among co-operating teachers and student teachers.

The results of the testing of pupils before and after the metrics lesson revealed that there were differences in pupil achievement. These differences were assumed to be related to the actions of the student teachers in those classes.

Relationships between student teacher performance and the nature of the student teaching dyad were described. Consistent gain scores by classes were determined from the sets of means. Distinct patterns of relationships were correlated with the types of relationships between co-operating teachers and student teachers which are considered to contribute to the success of the student in a student teaching situation.

CHAPTER V

SUMMARY, DISCUSSION OF FINDINGS, CONCLUSIONS AND IMPLICATIONS, AND RECOMMENDATIONS

SUMMARY

There is a considerable body of literature which emphasizes the benefits of having close personal relationships in educational settings. However, little is known about the effect of these relationships in terms of the cognitive achievement of pupils. In particular, there is almost no research on the nature or quality of the relationships that develop between co-operating teachers and student teachers and the effects of those relationships on the pupils of their classes.

The present study was developed with reference to a much larger project conducted by Yee(1967). He claimed that the relationship within the student teaching triad (consisting of the co-operating teacher, the student teacher and the faculty consultant) may be one of the most important variables in the student teaching situation. In an endeavour to benefit from the preliminary work done with relationships among members of the student teaching triad, a

study was designed to attempt to determine whether the quality of the relationship existing within the dyad composed of the co-operating teacher and the student teacher assigned to that teacher, affects pupil outcomes.

The present study was designed to examine two major aspects of the student teaching situation: the quality of the interaction between the co-operating teacher and the student teacher, and, the effect of this relationship on the cognitive achievement by pupils in the co-operating teacher's class.

It was first considered necessary to gather information regarding the type of relationship existing between members of each of the student teaching dyads at the time of a structured intervention. Thus the quality of the relationship could be determined relative to the relationships existing in other dyads.

The second purpose of the study was to determine the achievement of each class which could reasonably be assumed to have resulted from the actions of the student teacher. This achievement was then considered relative to the achievement of all classes within the same grade, and classes within the sample.

Finally, the relationships existing within each student teaching dyad were examined in relation to the achievement of the student teacher as indicated by pupil achievement, and correlations among the responses were examined to ascertain the relationship existing between these measures.

Forty-two student teachers and their co-operating teachers were involved in a structured intervention with the classes to which they had been assigned. The intervention was produced by providing all co-operating teachers and student teachers with kits in which the instructions and materials relevant to the role regarding the required lesson were included. Student teachers taught one thirty minute lesson on metric linear measurement units. The objectives for the lesson were to be determined with reference to the pre-test scores achieved by the pupils in the class. An index of achievement of the class members was developed from the raw gain (post-test less pre-test) scores. Three categories of pupil achievement (Consistent High Gain, Consistent Low Gain and Inconsistent Gain) were used to group classes according to comparisons of class raw gain scores with grade and sample mean scores.

DISCUSSION OF FINDINGS

The major purpose of the study was to determine whether there is a correlation between the quality of the relationship within each student teaching dyad, and the quality (or, characteristic) pupil achievement which could logically be attributed to the student teacher member of that dyad.

In view of the nature of the data, in particular the absence of high correlations between (a) the raw gain scores and IQ measures, and (b) the pre- and post-test scores, a method of determining Consistent Gain scores was developed. The Consistent Gain score was devised as a "best possible measure" and was accepted on the basis that it appears to be feasible. The measure was used to classify groups into Consistent High Gain, Consistent Low Gain and Inconsistent Gain categories.

Four separate analyses based on the co-operating teacher's rating for the student teacher, the student teacher's rating of the co-operating teacher, and pupil achievement were conducted. These analyses were used to describe the relationships between (a) the student teacher's performance and the valence of the student teaching dyad, (b) the student teacher's performance and the co-operating

teacher's rating of the student teacher, (c) the student teacher's performance and the student teacher's rating of the co-operating teacher, and (d) the student teacher's performance and the balance within the dyads. Each of these analyses was conducted in accordance with the proposed strategies, using non-parametric techniques.

There were no strong indications of association between the relationships within the student teaching dyads and the pupils' achievement. There were no ready explanations for this lack of association between these sets of measures. However, in view of the nature of the differences in responses on the instruments it is speculated that any real differences existing in the dyad could be obscured by the method of classification by ratings. If this is the case - and subsequent discussion will attempt to support the contention that this is so - then the use of ratings and valences to discriminate between dyads as suggested by balance theory may be unsuitable for comparison with pupil achievement.

Student teacher performance and the valence of each student teaching dyad

The distribution of dyad valences and classes with consistent pupil achievement revealed that approximately

half, or 10 of the 19 dyads, were composed of members who held positive ratings of each other whilst the remaining half of the sample were dyads in which at least one member's rating of the other member was negative(Table 3). It had been expected that dyads with mutually positive ratings(++) would be found with pupils achieving Consistent High Gain scores. Six dyads did fall into this category but there were four dyads with mutually positive ratings which had Consistent Low Gain achievement. This finding, supported by statistical analyses of the measures for this sample of classes, suggested that there was no association between the combined perceptions of the members of the student teaching dyads and pupil achievement.

It would therefore appear from this distribution that although there were qualitative differences in the relationships existing within various student teaching dyads these differences could not be related to the student teacher's ability to affect changes in their pupils' level of achievement on the metrics test.

Student teacher's performance and the co-operating teacher's rating of the student teacher

The co-operating teachers' perceptions of student teachers revealed that eight of the student teachers who

were rated by their co-operating teachers as positive(+) were associated with pupils who achieved Consistent High Gain scores with their pupils; whilst two student teachers rated by their co-operating teachers as negative(-) had pupils in the Consistent High Gain group. For student teachers whose pupils achieved at a Consistent Low Gain level there was little difference between the frequency of negative or positive rating of the relationship by the co-operating teacher (Table 4).

Student teacher's performance and the student teacher's rating of the co-operating teacher

The distribution suggested that there is very little difference between the pupil achievement of those students who rated their co-operating teacher as positive(+) and student teachers who rated their co-operating teachers as negative(-). This finding is supported by statistical treatment of the distribution which revealed that the distribution could have occurred by chance.

Student teacher's performance and the balance of the student teaching dyads

Dyads in which there was considered to be "balance" (with valence of either ++ or --) were compared

with dyads considered to be in a state of "imbalance"(with valence of +- or -+) and with their respective consistent pupil achievement rating (Table 6). Fourteen of the 19 dyads were considered to be in balance compared with five dyads considered to be in a state of imbalance.

The distribution showed that both "balanced" and "imbalanced" dyads were approximately evenly distributed between Consistent High Gain and Consistent Low Gain pupil achievement groups. This suggested that the distribution was a chance occurrence, a finding supported by statistical analysis.

CORRELATIONS WITHIN PUPIL ACHIEVEMENT GROUPS

Experience as a teacher and co-operating teacher

Analysis of the data indicated that the experience of the co-operating teacher as shown by the number of student teachers supervised and the number of faculty consultants with whom the co-operating teacher had been professionally associated, may be related to the ability of the student teacher assigned to them to produce change in pupil achievement. The Consistent High Gain group of co-operating teachers had supervised an average of four student teachers more than the co-operating teachers associated with

the Consistent Low Gain group of pupils.

The co-operating teacher with Consistent High Gain pupils had fewer years as a teacher, and placed lower value on student teaching and student teachers in general than did other co-operating teachers(Items 1, 4 and 5, Table 7). A relationship between these factors and the student teacher's ability to produce more change in their pupils was not apparent. It is suggested that the experience of the co-operating teachers associated with Consistent High Gain groups of pupils may be a positive influence on the student teacher's success with pupils.

Co-operating teachers whose pupils achieved Consistent Low Gain scores were negatively associated with the nature of the relationship with the student teacher and his knowledge of subject matter. This would suggest strongly that although the means of responses indicate a substantial value is placed on student teaching, the co-operating teachers were not basing this value on the student teacher currently in his/her class. The correlations indicated that co-operating teachers held a low opinion of their relationship with a student teacher, when knowledge of subject matter was not highly valued (Items 4 and 10, Table 7).

Student teachers associated with Consistent Low Gain pupils rated their perception that the lesson would be used to evaluate them less positively than the Consistent High Gain group of student teachers (Item 33, Table 7).

These findings suggested that these co-operating teachers' ratings of the value of student teaching were not based on their current student teachers. They also suggested that these student teachers were more concerned than the other student teachers that the lesson would be used as a negative influence on their evaluation.

Co-operating teacher's perceptions of student teachers

Three patterns of correlations emerged for the manner in which co-operating teachers rated their student teachers. Co-operating teachers whose pupils achieved Consistent High Gain scores rated their student teachers in accord with the student teachers' perceptions of them, with the level of the student teachers' confidence in self, and with pupil achievement (Table 7).

Co-operating teachers associated with Consistent Low Gain groups rated their perceptions of their student teachers in accord with the rating of the lesson (Table 9). Co-operating teachers with Inconsistent Gain groups rated

their perceptions of student teachers at the same level as they rated each item of the observation questionnaire (Table 10).

These patterns suggest two dimensions: (a) that there were separate bases used by co-operating teachers for their perceptions of student teachers, and (b) that there is a dimension of "congruency of perception" within the groups.

The pattern of bases will be discussed fully in the next section which covers the co-operating teachers' marking of the observation questionnaire.

The "congruence of perceptions" about the aspects of the student teaching situation within each dyad associated with a Consistent High Gain group of pupils, seems to indicate a set of positive relationships for this student teaching dyad. By contrast the lack of this pattern of congruence of perceptions seems to indicate a lack of mutually positive relationships existing within the other two groups.

Observation of student teachers' lessons

The correlations revealed that co-operating teachers did not rate their observation of the metrics

lesson in accord with pupil achievement suggesting that their ratings were not good predictors of pupil achievement (Appendix E, Tables 7-9).

However, the patterns of correlations which emerged within the analysis of correlations showed that two different bases for rating the lesson observation may have been used. Co-operating teachers whose pupils were in Consistent High Gain groups showed no high correlations between their perceptions of the student teachers and their observation questionnaire ratings. There seems to be an "objectivity" on the part of these co-operating teachers which enables them to separate their impressions of the student teachers from their observations of the student teacher's lesson.

This objectivity was exhibited in varying degrees by both other groups of co-operating teachers. Those co-operating teachers associated with pupils in Consistent Low Gain groups marked the items of the observation questionnaire independently of their perceptions of the student teacher but their final rating of the lesson correlated highly with their responses about the student teacher. Even less objectivity was exhibited by co-operating teachers in Inconsistent Gain groups, for all items of the observation questionnaire were correlated with

the co-operating teachers' responses about the student teachers (Tables 10 to 12).

The reason for the development of this degree of objectivity is not readily apparent but it is speculated that since there is such a high degree of congruency of perceptions associated with objectivity that the resolution of the personal dimension, that is, the relationship between student teacher and co-operating teacher, may be involved.

For the Consistent Low Gain group, the co-operating teachers' ratings of clarity of presentation correlated negatively with the "variety of presentation and materials used" item. Since the clarity of presentation was affected negatively by the variety of presentation and was associated with lower achievement this finding may be of particular importance to teacher educators. One might question in particular the stages during the student teacher's development at which a wide variety of materials should be recommended for use in his/her lessons.

Student teachers' responses about their co-operating teachers

The results of the student teachers' responses on the My Co-operating Teacher questionnaire were unexpected.

Student teachers associated with Consistent Low Gain groups rated their relationships with their co-operating teachers as marginally higher than did the student teachers in the two other groups(Table 7, Items 24 to 27). The reason for this is not apparent, and speculation on the meagre information available would not be justified.

The finding that the student teacher associated with Consistent High Gain groups had high correlations between his perceptions about the co-operating teacher, and the co-operating teacher's responses about him/her supports the pattern of correlations considered to be a congruence of perceptions emerging for this group.

There are no clear indications from either of the other groups' student teacher responses which support a distinct pattern for their groups. It may be that the differential rating between affective merit and cognitive merit dimensions and the lower rating for the general merit dimension for the Inconsistent Gain group is due to two distinct aspects of the perceptions held about their co-operating teachers. These dimensions might possibly be considered to correspond to "professional" and "personal" dimensions.

Student teachers' perceptions about the study

The most important finding from this section of the study was the set of three patterns of intercorrelations which emerged among student teachers' responses (Appendix E, Tables 8-15).

For the Consistent Low Gain and the Inconsistent Gain groups of student teachers there were many high, positive intercorrelations among the questionnaire items. The considerable uniformity of responses for the Consistent Low Gain and Inconsistent Gain group of student teachers was not evident for the Consistent High Gain student teachers. It is possible that the Consistent High Gain student teacher had a more "objective" perspective of the student teaching situation than the somewhat "self-centred" approach which characterized the Consistent Low Gain and Inconsistent Gain groups of student teachers.

Student teachers with Consistent High Gain groups perceived the effect of the metrics lesson on their relationship with the co-operating teacher as being more positive than did either other group of student teachers. Since, however, the questionnaire from which this information was gained was answered after the student teachers' return to campus this may be a rating of the

actual effect of the lesson. Both co-operating teachers and student teachers had feedback about the lesson which could have influenced their responses about the lesson. If this is so the possibility of damage to relationships with student teaching dyads by research in which both favourable and unfavourable feedback is provided must be recognized.

The information provided in the student teacher's kit does not appear to have had major impact on the study. There was statistical support that the student teacher associated with pupils achieving Consistent High Gain scores interpreted the objectives for the study more accurately and their relationship to pre-test scores. These student teachers also rated the student teacher's kit as being more adequate than did student teachers in the other two groups. The influence of "halo" and "sour grapes" effects for the Consistent High Gain and Consistent Low gain respectively are acknowledged as possible explanations for these differences. Particularly is this so since the result of the metrics lesson, as indicated by pupil achievement, was known by student teacher respondents when this information was obtained.

There was some statistical evidence which suggested that pupil achievement was due to the ease of teaching the lesson , and the student teachers' knowledge of

metrics. Student teachers associated with Consistent High Gain groups had taken more courses of Mathematics than had either of the other groups of student teachers. It is not surprising that they also rated their ease of teaching metrics higher than did either other group of student teachers. Unfortunately there was no measure of the extent to which student teachers attributed these factors to pupil achievement. The findings do, however, suggest that there is a subject-specific dimension to the study which may have had considerable, undetected influence, particularly on pupil achievement.

Student teachers associated with Consistent High Gain groups rated their lesson and their preparation of the lesson higher than other groups (Item 40, Table 7). There was no correlation between the student teachers' ratings of their lessons and pupil achievement as research reported by Rosenshine (1971) would suggest might have occurred.

The student teachers' conviction about their suitability for teaching and their confidence as a teacher appear to be a feature of the pattern of correlations emerging for student teachers associated with Consistent High Gain groups. These student teachers perceived they had considerably more confidence than student teachers in either of the other groups. However the cause for this confidence

was not determined. The support given to these student teachers by their Mathematics background suggests that their confidence may be subject specific, although may not be necessarily so. The student teachers were asked to rate their confidence as a teacher generally and not specifically for teaching metrics.

Since both confidence and conviction do have statistical support for association with the co-operating teacher's perception of the student teacher, the student teacher's perception of the co-operating teacher, and with pupil achievement it seems reasonable to suggest that there is a connection between the degree of confidence and the student teacher's effectiveness as determined by pupil achievement.

CONCLUSIONS AND IMPLICATIONS

In drawing conclusions from this study it must be noted that there are major limitations assumed to underly the evidence from the study. Firstly, classroom research acknowledges the existence of a great number of potentially contaminating variables over which a researcher has little or no control. Secondly, the student teachers involved in the study were not volunteers hence a uniformity of conviction and interest in the study cannot be assumed for

the sample of student teachers. Thirdly, the time available for the development of close associations between co-operating teachers and student teachers was limited and determined by the particular nature of a one-year teacher education program. In a study based essentially on the quality of the experience between the co-operating teacher and his/her student teacher there is no indication that the relationship was firmly, and adequately established. Fourthly, the limitations associated with the requirement that an intending teacher in the first student teaching experience interpret pre-test results, and teach a timed lesson developed from a set of hierarchical objectives to a class of pupils with which association had been limited by the nature of the program, is acknowledged. Finally, the threat of personal evaluation concommitent with such ego-involved research is fully recognized.

An attempt was made to determine whether or not the quality of the relationship between the members of the student teaching dyad, comprising a co-operating teacher and the student teacher assigned to that class, could be related to the achievement of pupils in that class. The two applications of statistical techniques chosen to illustrate these relationships and compare the pupil achievement considered to have been due to specific actions by the student teacher have produced a difference in the quality of

findings when questionnaire responses are treated wholistically compared with when the questionnaire responses are treated in terms of their component parts. Analyses of the data using the Pearson product moment correlation test have revealed patterns or clusters of correlations which were not indicated by the non-parametric techniques used. This has given rise to two complementary sets of conclusions.

The first method, in which ratings and valences of association between co-operating teachers and student teachers were compared with pupil achievement, led to the conclusion that there is no significant correlation between the student teacher's performance as equated with pupil achievement on the metrics lesson with (a) the valence formed by the ratings which each member of the student teaching dyad have for each other, or (b) the rating of the co-operating teacher for his student teacher, or (c) the rating of the student teacher for his co-operating teacher, or (d) the balance within the dyad.

The second method in which the actual responses on the questionnaires used in the study were correlated has indicated that there are patterns of associations which have been concluded to be of importance. In revealing these patterns of correlations it has been concluded that the

first method of determining relationships within student teaching dyads, that is, by the amalgamation of raw responses scores into ratings and valences, has provided only a broad categorization of student teaching dyad relationships. This method of categorization tends to obscure differences within and between dyads which are thought to be important aspects of the student teaching situation.

These two methods of analysis are considered to be appropriate to the basic theoretical framework selected for the study. The dyad has been postulated to have an "attraction structure"(Newcomb et al.,1965) determined by the attitudes of the members of the dyad. Analysis of the data in terms of a wholistic, composite approach is considered as appropriate as the analysis in terms of the component parts which contribute to the whole attraction structure.

The major finding from the study is that there is a substantial pattern of high correlations existing for student teachers associated with Consistent High Gain score groups of pupils. These high correlations exist among the co-operating teacher's perception of the student teacher, the student teacher's perception of the co-operating teacher, the conviction of his suitability, and confidence

as a teacher, and the quality of pupil achievement. This cluster of ratings is not apparent for either of the other group of student teachers.

This pattern illustrated that there is a congruence between the perceptions held by the members of the student teaching dyad. In view of the theoretical framework provided for the study this mutuality of perceptions is considered to approximate the theoretical construct of "balance" where mutual perceptions of each member of the student teaching dyad are present. By corollary, since there is no mutuality of perception for the responses for student teachers associated with other groups, these conditions represent "imbalance".

Thus, the conclusion is that the quality of the relationship existing within the student teaching dyad does affect the teaching performance of the student teacher as reflected in pupil achievement scores.

A further feature of this pattern of correlations was the degree of association found within the student teacher's high level of confidence as a teacher, the type of pupil achievement the student teacher considered to have resulted from his actions, and his perceptions about the co-operating teacher. It is concluded that for this sample of

student teachers, where student teacher confidence was high and correlated with their perceptions about their co-operating teacher, their level of confidence also correlated with their successful teaching of the metrics lesson.

A second pattern of responses emerging from the correlations indicates there may have been three different bases used by co-operating teachers to observe their student teacher's lesson. Co-operating teachers with pupils in Consistent High Gain groups rated their observation questionnaire independently of their perceptions of their student teacher; co-operating teachers with Consistent Low Gain scores for their pupils made their final rating of the observation questionnaire in accord with their perceptions of the student teacher; whilst the Inconsistent Gain group co-operating teachers rated the observation questionnaire in accord with their overall perception of their student teacher.

This finding implies that there may be a factor of "objectivity" operative in the student teaching dyad which affects the co-operating teacher's perception of the student teacher. This factor of objectivity appears to indicate that the resolution of mutual perceptions between co-operating teacher and student teacher may be necessary before the co-operating teacher can objectively observe the

lesson.

The third pattern of correlations considered to be important is evident in the frequency of intercorrelations among the student teacher's responses about the study. Eighty three per cent of responses about the study itself by student teachers associated with Consistent Low Gain scores intercorrelated whilst 20% of the responses by student teachers with pupils in Consistent High Gain groups intercorrelated. Student teachers associated with Inconsistent Gain score groups were approximately midway between these extremes at 50% of intercorrelations. One might speculate that the existence of this pattern represents a personal dimension of the student teacher. A decline in intercorrelations among variables concerning the student teacher's perceptions of important-to-him aspects of the study may be related to the student teacher's increased effectiveness as a teacher.

The co-operating teachers and student teachers associated with Consistent High Gain groups appeared to develop a mutually rewarding relationship. Student teachers in this group rated themselves higher than student teachers in other groups on the rating of the lesson , the preparation of the lesson, their conviction and confidence for teaching, and their effect of the lesson on their

relationship with the co-operating teacher. In similar manner the co-operating teachers associated with these student teachers rated them highly on the "My Student Teacher" questionnaire and on the observation of the metrics lesson. There is no conclusive evidence to support the foundation of these high ratings between the members of Consistent High Gain dyads as being a personal relationship. However, the association of these ratings with high pupil achievement could have serious implications for teacher educators and co-operating teachers associated with practica involving long periods of interaction between student teachers and the pupils in co-operating teachers' classes.

RECOMMENDATIONS

This study was undertaken in an endeavour to determine how important the relationships between the co-operating teacher and the student teacher in a student teaching situation are to the achievement of the pupils in the class. The findings suggested that the relationship within the dyad (a) influences the perceptions the co-operating teacher has of the student teacher as "student teacher"; (b) is associated with the self-confidence of the student teacher; and (c) is related to the level of class achievement attributable to the student teacher. The recommendations derived from the findings are related to

pre-service teacher education, in-service education for co-operating teachers, and research in the student teaching field experience area.

Pre-service teacher education

The findings suggest that the student teacher's confidence as a teacher may be an important aspect of his teaching effectiveness as well as being an important factor in his conviction of his suitability as a teacher. The basis for this confidence is not totally clear from the study, but there are indications that confidence is based on an adequate subject matter knowledge, sound planning and good personal relationships. In order to achieve this confidence it seems essential that the pre-service courses provided to student teachers be such that their competence as a beginning teacher is enhanced. Subject matter knowledge and good planning are thought to be features in the normal B.Ed. programs at the University of Alberta. However these students were one year Diploma students whose background knowledge was extremely varied, and there was a notable lacking in science and mathematics courses. The recommendation drawn from this aspect of the study is that if pupil achievement is partially, at least, dependent upon the student teacher's subject matter knowledge then the teacher education institution must ensure student teachers

are provided with an adequate knowlege of subjects they could reasonably be expected to teach.

There are indications in the study that planning and teaching to specific objectives may be an important skill required of teachers. In view of the findings that high pupil achievement occurred when student teachers interpreted the association between pre-test scores and required objectives correctly it is recommended that teaching this skill should be a feature of pre-service education.

The variety of materials and techniques used was indicated in the findings as a possible source of interference for the clarity of the presentation. In view of this finding the inclusion of instruction in the correct use of Audio Visual materials into pre-service education courses appears necessary.

In-service education for co-operating teachers

The findings of this study suggest that there are at least two dimensions to the role of a co-operating teacher: firstly, the personal dimension of his attraction for the student teacher and, secondly, the professional role associated with the impartial objectivity of observation and

professional assistance. The conduct of these roles is considered to have an important bearing on the student teacher's confidence which the study has shown may be related to the level of pupil achievement.

It has been acknowledged (Perrodin, 1961) that there are benefits for student teachers when they are placed with co-operating teachers who have been involved successfully in courses specifically designed to equip them for their role as co-operating teachers. It is recommended that in order to enable teachers to establish the personal and professional perspectives required for the separation of these aspects in their role as a co-operating teacher that teacher education institutions consider the provision of courses designed specifically for persons involved in the supervision of student teaching.

Research in teacher education

The pupil achievement measure used in this study concerned the change in pupils' ability to use metric linear measurements. The findings suggested that the relationships existing between co-operating teacher and student teacher may be associated with pupil achievement. However there was also evidence to suggest that pupil achievement may be subject specific. It is recommended that studies be

undertaken to determine whether the findings from this study could be replicated with content from a different subject area as the dependent variable.

For purposes of this study, the period of interaction between co-operating teacher and student teacher was not continuous over a long period, as is possible under proposed "extended practicum" conditions. It is further recommended that a study be undertaken in which a longer period of close association between the co-operating teachers and student teachers is provided.

CONCLUDING STATEMENT

This study has been conducted in order to understand the importance of the relationships which develop between a co-operating teacher and a student teacher to the achievement of the pupils in the co-operating teacher's class. It also represented an attempt to isolate the elements of the relationship such that action might be taken by teacher education institutions in order to improve the pre-service education of the intending teachers. Finally, the study has provided preliminary information about the nature and characteristics of the student teaching experience which can assist those who are responsible for the implementation of periods of student teacher/co-operating teacher interaction.

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APPENDIX A:

CO-OPERATING TEACHER'S KIT

CONFIDENTIAL SUMMARY FOR CO-OPERATING TEACHERS

Co-operating teachers are requested to not discuss the matters in this handout with student teachers.

Administration of Tests.

Co-operating teachers are requested to administer the same test on two occasions

a) Pre-test - Wednesday, October 23rd.
b) Post-test - Thursday, November 7th.

The following points should be observed:

i. Test administrations should be standardized, i.e. follow closely the accompanying 'Instructions for Administration of Tests of Metric Linear Measurement.'
ii. A high degree of co-operating teacher supervision of pupil responses will probably be necessary for the successful use of the optical scoring sheets.
iii. The test instructions have been produced for these tests. A prior reading of the instructions before test administration is requested.

Instructions for Student Teachers

Co-operating teachers are asked to give the envelope containing the materials for the student teacher to him/her during the morning of Monday, 4th November.

In the event that the student teacher receives the instructions at a later time a period of two days notice between the receipt of the instructions and the teaching of the lesson is needed to preserve the research design.

Compensation of Time for Exercise

In order that the student teacher's preparation for the exercise does not increase the daily, or nightly, preparation load co-operating teachers are sincerely requested to adjust the student teacher's lesson load such that the exercise-lesson would be just one lesson of the normal load. For example, if the co-operating teacher requires four prepared lessons per day then this exercise-lesson would become one of those four lessons.

Observation Schedule

Co-operating teachers are requested to observe the exercise-lesson and

complete the 'Observation of the Student Teacher's Lesson' questionnaire. The confidentiality of the co-operating teacher's responses is assured.

Interaction with Student Teachers

Whilst acknowledging that this may prove difficult, co-operating teachers are asked to refrain - at least as far as is possible - from discussing or interacting with student teachers about any aspect of the preparation for the exercise-lesson. Student teachers are "expressly required to refrain from obtaining any assistance from their co-operating teacher, other teachers within the co-operating school and their University instructors or faculty consultants." As all student teachers will be constrained in this way the matter of interaction with the co-operating teacher may not prove problematic.

Completion of "My Student Teacher" Questionnaire.

Co-operating teachers are requested to complete this form within 48 hours of the student teacher's exercise-lesson.

Whilst this form may help the co-operating teacher clarify certain aspects of the student teacher's progress in his classroom, information on the form will NOT be used for any assessment purposes for either Ed. CI 402 or Ed. Pra. 400.

Please return the completed "My Student Teacher" questionnaire and the student teacher's "My Co-operating Teacher" questionnaire with the post-test optical scoring sheet and summary.

Envelopes have been provided for this purpose.

Completion of "My Co-operating Teacher" Questionniare

During the period when co-operating teachers are completing the "My Student Teacher" questionnaire, student teachers will be completing a "My Co-operating Teacher" questionnaire.

Co-operating teachers are sincerely assured that the anonymous nature of the information gained from these questionnaires will be preserved.

Teaching of Metric Linear Measurement Units.

In the request to co-operating teachers to refrain from using metrics until after the 6th November, co-operating teachers may not have been informed that the use of metrics in the study is restricted to linear measurement. The oversight is regretted.

COLLECTION OF PRE-TEST AND POST-TEST SCORES

PRE-TEST SCORES.

The pre-testing of the children is timetabled for Wednesday, October 23rd. The investigator would like to be able to work on the analysis of results, do preparation of materials for student teachers, etc., during the period 26th October to the 1st November and for this reason is sincerely requesting that co-operating teachers be able to provide on Friday 25th October, the following materials:

a) The optical scoring sheets for the first test.

b) A summary of the class achievement - tabulated on a Class List sheet.

Class percentages need not be calculated - unless the co-operating teacher wishes to do so. Percentages will be calculated on the summary sheets returned to the school.
A summary sheet - with percentages - will be returned to the co-operating teacher in addition to the Summary Sheet given to the student teacher for the purposes of his/her planning for the exercise-lesson.

c) Student teachers MUST NOT participate in the marking of pre-test scores.

POST-TEST SCORES.

The post-testing of the children is timetabled for Thursday, November 7th. Co-operating teachers - and presumably student teachers - will wish to know the results of the exercise soon after its completion.

Co-operating teachers and student teachers are sincerely requested to NOT MARK THE POST-TEST OR DISCUSS THE EXERCISE including the Observation Schedule until the completion of the MY STUDENT TEACHER questionnaire by the co-operating teacher, and the MY CO-OPERATING TEACHER questionnaire by the student teacher.

COLLECTION. The investigator will arrange for all materials to be collected from the school.

RETURN OF PRINTED MATERIALS

The return of all printed materials e.g. tests, instructions, would be appreciated. In the event of unforeseen circumstances arising, the exercise may need to be repeated.

ADVICE RE SCORING OF THE PRE- AND POST-TESTS

Co-operating teachers who are not familiar with the marking of this type of test should find the following information useful.

MARKING KEY. Within the envelope for co-operating teachers you will find an optical scoring sheet with holes punched in it. By placing this KEY over each optical scoring sheet the correct answers registered by that child can readily be seen.

CLASS LIST. Within the envelope you will find several class lists. By using a class list in conjunction with the marking key and the children's answer sheets it is a simple matter to check in the appropriate columns the children's correct answers.

CHILD'S PERSONAL SCORE. The child's personal score is indicated by the total number (N) listed at the right hand side of the class list. This is obtained by listing the total of all correct responses for objectives 1 through 21. The percentage total for each child is derived by dividing the total (N) by 21.

CLASS ATTAINMENT. The class attainment is obtained by listing the total number of correct responses for each objective. The total should be written in the column at the bottom of the page.
The percentage total for each objective is derived by dividing the total (N) by the number of children who took the test.

TIMING OF EXERCISE-LESSON

The thirty (30) minute duration of the lesson is important to the research design. For this reason co-operating teachers are requested to help with the timing by

a) Noting - by writing down - the time at which the exercise-lesson starts. This would be facilitated by arranging for the student teacher to take over from the co-operating teacher at an appropriate time. In this way the class should be 'settled down' and ready for instruction.
b) After twenty five (25) minutes quietly inform the student teacher that there are five minutes remaining.
c) After thirty (30) minutes, inform the teacher of the end of the time period.

STUDENT TEACHER LESSON PLAN.

The student teacher has been instructed to submit the lesson plan for the exercise-lesson to the co-operating teacher.

Will each co-operating teacher please return this lesson plan - clearly labelled - with the post-test optical scoring sheets.

Co-operation

Co-operating teachers are assured that their acceptance of the additional duties involved in this project - and the altering of timetables to accommodate the use of metrics - has been, and is, sincerely appreciated.

Contact Points.

Home 606B Michener Park Phone: 436-0657

University 251A Education Centre Phone: 432-3840

My sincere thanks. Ray Preston

INSTRUCTIONS FOR THE ADMINISTRATION OF METRIC LINEAR MEASUREMENT-TEST

PLEASE ensure that the administration of the test closely follows these directions.

Preparation

On the blackboard draw the following diagram.

A ship is as long as

A. a bike B. a chair C. a football field D. not sure

A___1 B___2 C___3 D___4

Ensure that all children have a pencil (HB), an eraser, and that seating prevents discussion between pupils during the test.

SAY No talking from now on please.

Distribute the optical scoring sheets - one to each child.

SAY Fill in your name, age, school and grade at the top of your answer sheet.

Children will probably need assistance, possibly demonstrations. Give whatever help is necessary but avoid unnecessary delay.

When children have completed information at the top of their answer sheets, distribute the Metric Linear Measurement Test.

SAY Today we will be doing an exercise about measuring.
In the exercise we will be using some words which you may not be able to read.
These words are on the front of your booklet in SECTION 1.
Look at the words - starting in the top left hand corner - and follow as I. say them.

The first word is 'centimetre.' All say the word with me 'centimetre.'
The letters 'cm' in the brackets are the short way of writing the word 'centimetre.'
Do you understand?

N.B. The teacher should explain the SOUND ONLY of words in section 1.
Do not give any indication of the length of any metric measurement unit.

If children are not clear that the sound is 'centimetre' or that 'cm' is the abbreviated form, please repeat the explanation.

Continue using this format for the introduction of all words in SECTION 1.

Please do not give any more information than the sound of the word and the meaning of the abbreviated form.

SAY Are there are questions about SECTION 1? (Respond to any queries)
Now look down the page and find SECTION 2.
In SECTION 2 you will find words you will need to know to complete the exercise.
Follow the words as I give you their sound and their meaning.

The first word is 'bike.'
Say this word with me. 'bike.'
'A bike is a metal machine that you can ride.'

The teacher is requested to go through the entire list with the class. However, the teacher should use his/her discretion as to how much explanation the class requires. For example, senior (Division 2) classes may need only a quick revision of the words.

N.B. Please do not give any information other than the word and its meaning. Avoid the use of measurement units in explaining meanings, particularly 'length', 'height', and 'thickness'.

SAY Are there any questions about SECTION 2? (Respond to any queries)

Now I want you to find SECTION 3 and look at the part which says 'READ THESE INSTRUCTIONS WITH YOUR TEACHERS.'

Ensure all children have found this section.

SAY Now follow while I read this section.

This booklet has some exercises for you to do.
Look at the first practice example.

'A ship is as long as (pause) which one ? a bike ? a chair ? a football field ? or are you 'not sure' ?

The blackboarded example should be used for this section of the instructions.

Now look along the line which says 'Answer for Practice Example 1.
You will see four spaces between dotted lines.
I want you to draw a line in the space with the letter of the answer you think is the nearest to correct, best possible one.
That is, draw a line in the 'A' space if you think 'a bike' is the best possible answer; a line in the 'B' space if you think 'a chair' is the best answer; a line in the 'C' space if you think 'a football field' or a line in the 'D' space if you are 'not sure.'

Give time for children to answer

SAY The nearest correct answer is 'C'. 'A ship is as long as a football field,' so you should mark, or have marked with your pencil between the dotted line in the 'C' space.

Demonstrate the correct method of answering with the blackboarded example.

SAY This is the way you will mark all your answers on the special answer sheet.

If you wish to change an answer, erase your mark completely, and then make another mark in the correct answer space.

SAY Now look at Practice Example 2.

'A cat is about as long as (pause) a horse ? a small dog ? a train ?
or are you 'not sure?'
Look at the example answer on your separate answer sheet. It is near the top on the left hand side.

Pause until all have found the example answer. Assistance may need to be given.

SAY Note that because the nearest to correct answer is 'B' (a cat is about as long as a small dog) there is a line drawn in the 'B' space.

Keep in mind that when you do the test this is how to mark your answers.

Mark all your answers on the separate answer sheet.

The answer for the first question on the exercise will go in either the A, the B, the C, or the D space between the dotted lines which are just to the right of the number 1.

Demonstrate on the separate answer sheet where the first answer will go.
Repeat the demonstration to show where the answer for the second question will go.

SAY Note that there are 5 columns on the answer sheet. You will only be using the first four, that is the A, B, C and D. columns.

Keep in mind that if you wish to change an answer, erase your mark completely and then make another mark in the correct answer space.

Are you all quite sure how to answer the question?

Give any assistance you think necessary to ensure that all do, in fact, know how to answer correctly.

SAY There are two pages to this exercise. Do both pages. You should answer twenty one questions.
You may find some of the exercises are very easy and some of them are rather difficult. Do not spend too much time on those that you find very hard.
Do those that you can, and then, if you still have time left, go back and do those that you missed.
You are not expected to be able to answer all the exercises correctly.
Just do your best.

Are there any questions? (Respond to legitimate questions)
Turn to the first page and begin.

NOTE STARTING TIME. Please make a written record of this time.

Allow EXACTLY 10 (ten) minutes for the children to work through the test.

N.B. You may give any assistance which is required for correct marking, the sounds of words, etc. but please do not give the children any help with the linear metric units.

At the end of ten minutes SAY STOP WORK. PENCILS DOWN.

Collect tests and marking sheets.

METRIC LINEAR MEASUREMENT TEST.

SECTION 1.

centimetre	(cm)	2 cm means 2 centimetres
decimetre	(dm)	9 dm means 9 decimetres
metre	(m)	6 m means 6 metres
millimetre	(mm)	7 mm means 7 millimetres
decametre	(dam)	3 dam means 3 decametres
kilometre	(km)	5 km means 5 kilometres
hectametre	(hm)	8 hm means 8 hectametres

SECTION 2.

banana	not sure	toe	button hole
ruler	packet	matches	player
jumbo jet	loaf	bread	hockey puck
dime	finger nail	slice	plastic bucket
packet	matches	lead pencil	baseball

SECTION 3. READ THESE INSTRUCTIONS WITH YOUR TEACHER

This booklet has some exercises for you to do.
Look at the first practice example.

Practice Example 1

A ship is as long as
A. a bike B. a chair C. a football field D. not sure

Answer for Practice Example 1. A 1 B 2 C 3 D 4

The nearest correct answer is C. (a football field) so you should make a mark with your pencil between the dotted lines in the C space.

Practice Example 2

A cat is about as long as
A. a horse B. a small dog C. a train D. not sure

Look at the example answer on your separate answer sheet. Note that because the nearest correct answer is B. (a small dog) there is a line drawn in the B. space. This is how you will mark your answers.

Mark all your answers on the separate answer sheet.
If you wish to change an answer, erase your mark completely, and then make another mark in the correct answer space.

DO NOT START UNTIL YOU ARE TOLD

1. A centimetre is about as long as

   A. an apple B. a penny C. a banana D. not sure

2. My toe is about as long as

   A. 1 decimetre B. 1 metre C. 1 centimetre D. not sure

3. A tall man is about as high as

   A. 200 centimetres B. 20 centimetres C. 2000 centimetres D. not sure

4. A decimetre is about as long as

   A. a buttonhole B. a baby's shoe C. a man's arm D. not sure

5. My foot is about as wide as

   A. 1 decimetre B. 1 centimetre C. 1 metre D. not sure

6. A ruler is about as long as

   A. 3 decimetres B. 1 decimetre C. 10 decimetres D. not sure

7. A metre is about as high as

   A. a chair seat B. a door C. a table D. not sure

8. My slacks are about as long as

   A. 1 centimetre B. 1 decimetre C. 1 metre D. not sure

9. The longest football kick was about

   A. 100 metres B. 10 metres C. 1000 metres D. not sure

10. A kilometre is about as far as

    A. from you to the window B. from your head to your feet

    C. around the football field twice D. not sure

11. A football player often jogs

    A. 1 metre B. 1 decimetre C. 1 kilometre D. not sure

12. A jumbo jet, in one hour, goes about

A. 100 kilometres B. 1,000 kilometres C. 10,000 kilometres D. not sure

13. A millimetre is about as thick as

A. a loaf of bread B. a hockey puck C. a dime D. not sure

14. A finger nail would be about as thick as

A. 1 millimetre B. 1 metre C. 1 centimetre D. not sure

15. A slice of bread is about as thick as

A. 100 millimetres B. 10 millimetres C. 1 millimetre D. not sure

16. A decametre is about as high as

A. a house B. a plastic bucket C. a coke can D. not sure

17. A little boy could throw a ball about as far as

A. 1 decametre B. 1 kilometre C. 1 hectametre D. not sure

18. A school is about as high as

A. 1 decametre B. 10 decametres C. 100 decametres D. not sure

19. A hectametre is about as long as

A. a packet of matches B. a new lead pencil

C. a football field D. not sure

20. A good throw in baseball would be about

A. 1 decametre B. 1 kilometre C. 1 hectametre D. not sure

21. The distance around the grounds of this school is likely to be about

A. 400 hectametres B. 4 hectametres C. 40 hectametres D. not sure

GENERAL PURPOSE ANSWER SHEET 1

NAME ..... AGE ..... YRS. MALE ☐ FEMALE ☐ TODAY'S DATE ..... 19 ....

SCHOOL ..... GRADE ..... NAME OF TEST .....

Indicate answer by placing a mark between the guidelines as shown in the example. Use HB pencil. Don't make marks longer than guidelines.

Example A ● B C D E

The spaces to the right are for recording student identification numbers. Do not fill them in unless instructed to do so.

CAUTION — AVOID PLACING ANY MARKS AMONG THE BLACK TIMING LINES

DEPARTMENT OF EDUCATION

GENERAL PURPOSE ANSWER SHEET 1

PART 1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70

71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105

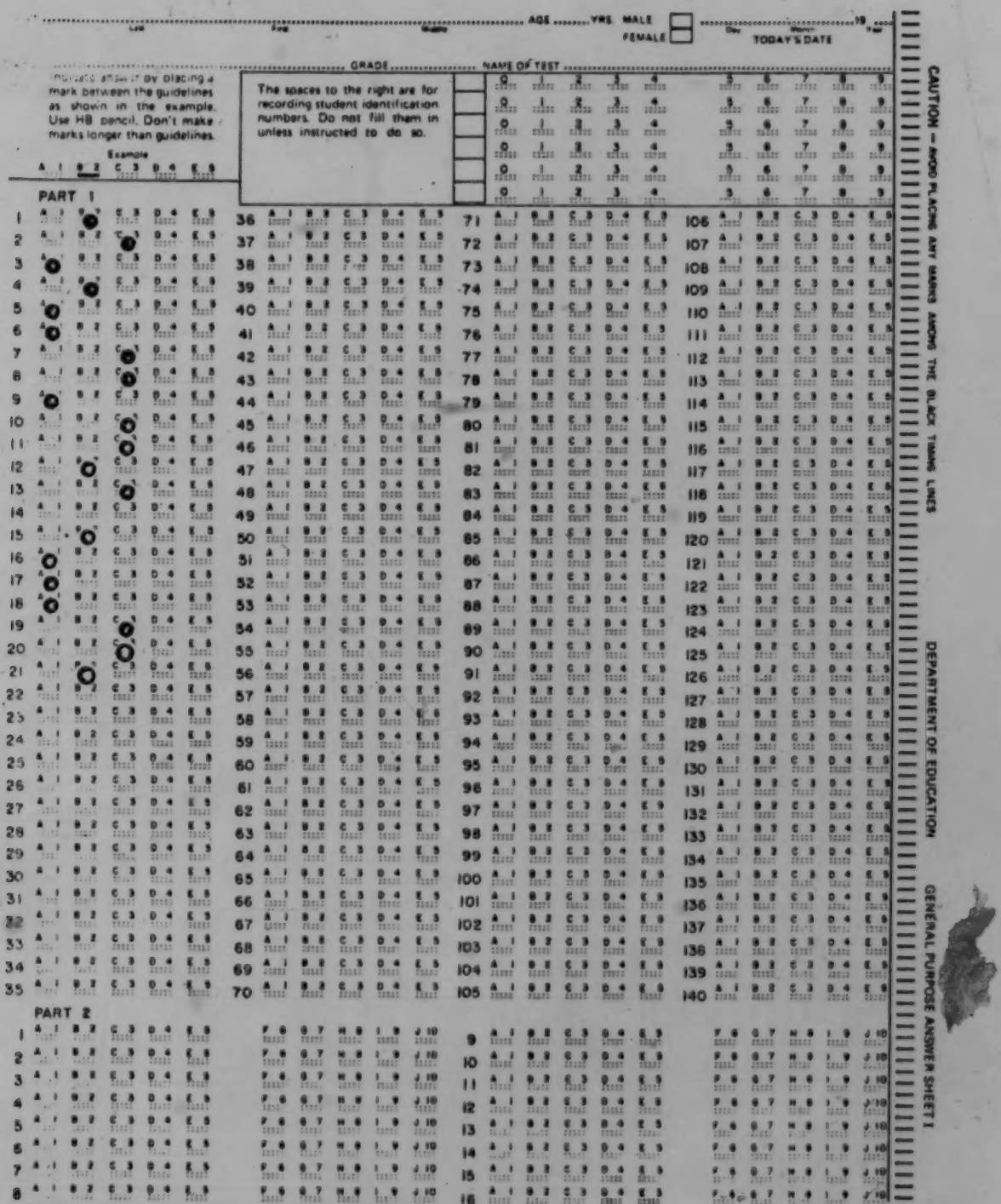
106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140

PART 2

1 2 3 4 5 6 7 8

9 10 11 12 13 14 15 16

METRIC LINEAR MEASUREMENT TEST MARKING KEY


Last
First
Middle
AGE ..... YRS
MALE
FEMALE
Day
Month
19 ..... Year
TODAY'S DATE
GRADE
NAME OF TEST
Indicate answer by placing a mark between the guidelines as shown in the example. Use HB pencil. Don't make marks longer than guidelines.
Example
The spaces to the right are for recording student identification numbers. Do not fill them in unless instructed to do so.
CAUTION — AVOID PLACING ANY MARKS AMONG THE BLACK TIMING LINES
DEPARTMENT OF EDUCATION
GENERAL PURPOSE ANSWER SHEET
PART 1
PART 2

MY STUDENT TEACHER - PART 1

Co-operating teacher _____

Please provide information and comments on the following items:

1. Years you have been a teacher: ..... _____
2. Number of student teachers you have supervised in the past: _____
3. Number of different faculty consultants of student teachers you have worked with in the past:..... _____
4. Brief comment on the value of student teaching experience:

_____

_____

_____

5. Brief comment on the professional and general quality of student teachers you have supervised:

_____

_____

_____

6. Brief comment on co-operative relations and professional understanding between you and faculty consultants:

_____

_____

_____

MY STUDENT TEACHER - PART 2

Co-operating teacher _____

Please provide information and comments on the following items:

1. Student teacher you are now supervising _____

2. Indicate by circling how well this student teacher compares to other student teachers you have supervised and/or known in the following categories (note that a circle around 4 would be exactly in the middle between the extremes):

a.	In general	Inferior	1 2 3 4 5 6 7 Superior
b.	Relations with pupils	Inferior	1 2 3 4 5 6 7 Superior
c.	Relations with cooperating teacher	Inferior	1 2 3 4 5 6 7 Superior
d.	Relations with college supervisor	Inferior	1 2 3 4 5 6 7 Superior
e.	Subject matter knowledge	Inferior	1 2 3 4 5 6 7 Superior
f.	Commitment to teaching	Inferior	1 2 3 4 5 6 7 Superior
g.	Energy and drive	Inferior	1 2 3 4 5 6 7 Superior
h.	Teaching skills	Inferior	1 2 3 4 5 6 7 Superior
i.	Originality, creative ability	Inferior	1 2 3 4 5 6 7 Superior

3. Brief comment on the work this semester with this student teacher:

_____

_____

_____

4. Brief comments on how the relations between co-operating teachers and student teachers could be improved (if no improvements necessary, please indicate so).

_____

_____

_____

5. Final grade you would give this student teacher if you were his or her faculty consultant:

1 2 3 4 5 6 7 8 9

OBSERVATION OF STUDENT TEACHER'S LESSON

Co-operating Teacher's Name _____

This lesson was predominantly
(Check one)

- Lecture .....
- Discussion .....
- Group process .....
- Other, please state .....

Presentation of facts, materials was

1	2	3	4	5	6	7
clear						obscure

Student teacher's use of techniques, materials showed

1	2	3	4	5	6	7
great variety						no variety

Student teacher's teaching behaviors were

1	2	3	4	5	6	7
lacking direction						task oriented, businesslike

Pupil behavior during the lesson was predominantly

1	2	3	4	5	6	7
active, involved						passive, non-involved

Co-operating teacher's rating of the lesson

1	2	3	4	5	6	7
excellent						very poor

APPENDIX B:

STUDENT TEACHER'S KIT

PLEASE READ THIS HANDOUT THOROUGHLY.

DOES STUDENT TEACHING MAKE A DIFFERENCE TO CHILDREN'S ATTAINMENT?

In an attempt to determine if student teachers' efforts during their student teaching really do make a difference to pupils' attainment, selected student teachers in grades 3 through 6 have been chosen to participate in an experimental exercise.

As you have been selected to participate in this experiment - which is expected to provide information to enable revision of the existing program - the following information should be of considerable relevance to you.

The Exercise Lesson. To teach one thirty (30) minute lesson on metric linear measurement to the student teaching class with which you are associated in Ed. Pra. 400.

Specific Objectives. The objectives for each class will vary according to the pupils' previous attainment. To determine the objective/s for the lesson the student teacher will need to use the class results of the pre-test, i.e. 'Analysis of Pre-test' in conjunction with the sheet headed "Hierarchical Objectives" which are included in the envelope.

The level of attainment desired for an objective is 90%. An experienced teacher would attempt to reach this level of attainment with as many children as possible before attempting to teach the next objective. It should be borne in mind that as all children are different you will probably need more than one - in fact several - objectives for your lesson.

Resources. A student teacher is free to use whatever aids she/he wishes to use. The enclosed metric resource materials provides basic linear metric measurement units.

Constraints. To give the student teacher the opportunity to express his/her own teaching style yet to retain the validity of the exercise it is necessary that they rely on their own initiative. Student teachers may use any material resources they have access to however they are expressly required to refrain from obtaining any assistance from their co-operating teacher, other teachers within the co-operating school, their University instructors or faculty consultants.

ANALYSIS OF PRE-TEST DATA

In your preparation for the exercise lesson you will need to use the Analysis of Pre-test sheet to determine which children are attaining particular objectives. This information should be of use to you in planning your teaching strategy/ies and the assignments for the children.

Consider the following hypothetical data.

SCHOOL ..EDMONTON.....
GRADE .....3.....
TEACHER ..T.SQUARE.....

ANALYSIS OF DATA — PRE - TEST ✓ — POST - TEST

		OBJECTIVES																				TOTALS	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	N	%
AMHURSS Wendy	1	x																					1	4
BURTON Marion	2	x	x	x	x																		4	19
CRAWFORD Elissa	3	x																					1	4
DUNN Francine	4		x																				1	4
FRANK Ruth	5	x		x																			2	9
HOWARD Trevor	6		x																				1	4
JAMES William	7	x	x	x	x	x	x																6	28
LAURIE Bruce	8	x	x	x	x																		4	19
MORRIS Raymond	9	x	x	x																			3	14
PRICE George	10	x	x												✓								2	9
ATTAINMENT N		8	7	5	3	1	1																	
ATTAINMENT %		80	70	50	30	10	10																	

Analysis of the above hypothetical data reveals the following information:

Objective	Learning needed by	Pre-test % attainment
1	Francine, Trevor	80
2	Wendy, Elissa, Ruth	70
3	Wendy, Elissa, Francine, Trevor George	50
4	Wendy, Elissa, Francine, Ruth, Trevor, Raymond, George	30
5	All children <u>except</u> William	10
6	All children except William	10
7+	All children	0

Teaching Strategy/ies. You are not restricted in any particular strategy for the exercise-lesson. Enclosed find an extract from Harmer "Teaching Strategies for Student Teachers" which may prove of use to you in planning your strategy for the exercise-lesson.
Student teachers are asked to submit their lesson plan at the conclusion of the exercise to the co-operating teacher, who will retain it.

Information re Linear Metric Measurement Units.

Your envelope contains sufficient information re metric units for you to plan your lesson content.

The sequence of introduction of metric units follows an Alberta Department of Education scope and sequence chart being considered for general adoption.

Time for Lesson. You are restricted to a 30 minute lesson which will be conducted during the period 9.00 a.m. to 12 noon on November 6th. The timing of the lesson during the stated period is to be determined through consultation with the co-operating teacher. In the event of an unavoidable timetable clash, the lesson is to be conducted on the most convenient occasion after this time.

NOTE WELL.

Although this exercise-lesson is designed to be explorative the outcomes of the lesson will in no way be used to evaluate either you or the co-operating teacher.

Anonymity of responses from all persons involved will be maintained at all times.

It is assumed naturally that measures of pupil achievement will provide some input into the classroom such that both the co-operating teacher and student teacher should benefit from the experience. It has been agreed that the exercise-lesson subsequently will be thoroughly discussed by the co-operating teacher and student teacher so that considerable useful information about teaching strategies, etc. can be gained.

Feedback from the investigator will be provided in time for the student teacher and co-operating teacher to make use of this information during the remainder of the student teaching period.

MY CO-OPERATING TEACHER QUESTIONNAIRE.

Student teachers are required to complete the My Co-operating Teacher questionnaire as soon as convenient after the exercise-lesson on metric measurements. On the 6th of November is most desirable.

An envelope for the return of this information is provided.

Student teachers should refrain from discussing the exercise-lesson or any part of the outcomes until after this questionnaire is completed.

OUR THANKS FOR YOUR PARTICIPATION AND COOPERATION.

SCHOOL .....

GRADE .....

TEACHER .....

ANALYSIS OF DATA PRE - TEST POST - TEST

OBJECTIVES

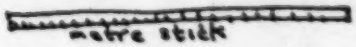
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		TOTALS N	TOTALS %
ACHEN, Blaine	1																								
BENTLEY, Susan	2																								
BRAYER, Connie	3																								
FINNEMORE, Dianne	4																								
GAZLOFF, Michelle	5																								
HEPBURN, Marion	6																								
JACOBSON, Tracy	7																								
KEDDIE, Raymond	8																								
LOUCKS, Cindy	9																								
LYON, Robert	10																								
MACDONALD, Deborah	11																								
MATHISON, Craig	12																								
MCINTYRE, Wade	13																								
MCKEEVER, William	14																								
MUELLER, Ross	15																								
NIELSEN, Drew	16																								
PETERSON, Kristin	17																								
POOL, Carol	18																								
RODGERS, Allen	19																								
ROYKO, William	20																								
RUSNELL, David	21																								
SCHAFER, Carolyn	22																								
SPOHN, Wayne	23																								
SPUTEK, Francis	24																								
VENNER, Janet	25																								
WENSCHLAG, Lesley	26																								
WONG, Sylvia	27																								
WOUTERS, John	28																								
	29																								
	30																								
ATTAINMENT N																									
ATTAINMENT %																									

It's time to *GO METRIC!*

Did you know the metric system has been around for almost 200 years? It started in France ..... and it is so-o-o-o EASY.

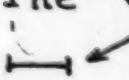
Here are some of the LINEAR units:

(A) The METRE - a little more than one yard.



(B) The DECIMETRE - $\frac{1}{10}$ of a metre. - a useful unit for use with elementary children.

(C) The CENTIMETRE - $\frac{1}{100}$ of a metre, and $\frac{1}{10}$ of a decimetre.



(D) The MILLIMETRE - $\frac{1}{10}$ of a centimetre. - a tiny unit of measure.

(E) The KILOMETRE - 1000 metres. (about of $\frac{5}{6}$ a mile.)

METRIC INFORMATION FOR TEACHERS

The metric system is simple to learn. It is a base 10 system. For each of length, volume and mass there is one basic unit, metre, litre and gram. All other units are found by multiplying or dividing by multiples of 10.

Basic Units

Metre: a little longer than a yard (1.1 yards)
Litre: a little smaller than a quart (.88 imperial quart)
Gram: about the mass of a paper clip (1 kilogram is 2.2 pounds)

There are a limited number of prefixes in common usage.

milli - one-thousandth (0.001)
centi - one-hundreth (0.01)
kilo - one-thousand times (1000)

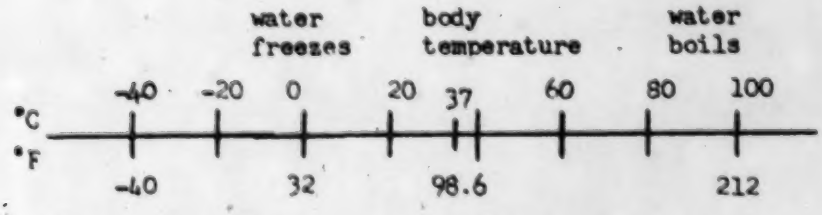
These give rise to the following common units:

millimetre: 0.001 metre; diameter of a paper clip wire
centimetre: 0.01 metre; width of a paper clip
kilometre: 1000 metres; approximately 5/8 of a mile

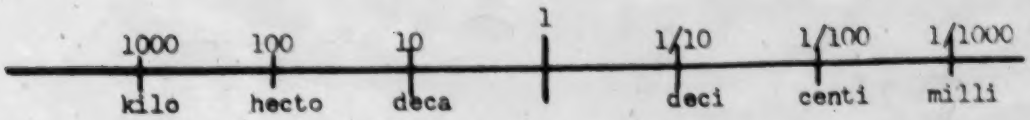
kilogram: 1000 grams; a little more than 2 pounds
millilitre: 0.001 litre; 1 cm^3 or about the volume of the tip of a finger from the base of the nail.

Other Useful Units

Hectare: about 2 1/2 acres
Tonne: about one ton
Degrees Celsius: temperature units



A prefix is attached to the basic metric unit to name all the multiples and submultiples of the basic unit.



Prefix	Multiplication Factor	Symbol
Mega	1 000 000	M
kilo	1000	k
hecto	100	h
deca	10	da
	1	
deci	0.1 or 1/10	d
centi	0.01 or 1/100	c
milli	0.001 or 1/1000	m
micro	0.000 001 or 1/1 000 000	μ

Basic Units

Quantity	Unit	Symbol
length	metre	m
mass	gram	g
volume	litre	l
time	second	s
temperature	Celsius degree	°C

KEY RECOGNITION POINTS

These everyday things offer some idea of the way we should look about us to find common objects which we can associate with metric measures. You can readily add to this list because an increasing number of items in metric containers can be seen almost every week. At the time of writing, some bottles and tubes show the contents in millilitres.

LENGTH

Dienes materials are metric.

An Olympic swimming pool is 50 metres long.

A Canadian football is about 28 cm long.

A regulation basketball is 22.5 cm in diameter.

A regulation softball has a diameter of 10 cm.

The thickness of a Canadian nickel is 2.0 mm and it has a diameter of 2.1 cm.

The height of an office desk is about 75 cm.

Doorways are about 2 metres high and about 80 cm wide.

LENGTH

The basic unit is the metre.

Symbol	Unit	Multiplication Factor
km	*kilometre	1000 x basic unit
hm	hectometre	100 x basic unit
dam	decametre	10 x basic unit
m	*metre	1
dm	*decimetre	0.1 or 1/10 x basic unit
cm	*centimetre	0.01 or 1/100 x basic unit
mm	*millimetre	0.001 or 1/1000 x basic unit

-decimal equivalents are preferred at the appropriate age level

Symbols are combined in the following way:

prefix symbol	k	(kilo)
basic unit symbol	m	(metre)
combined symbol	km	(kilometre)

Conversion from one unit to another is quite simple since it is based on powers of 10:

e.g. 0.25 m = 2.5 dm
= 25 cm
= 250 mm

* units in common usage

The Millimetre

The last unit of length you will need to know is the millimetre (mm). Since *milli* means one thousandth

1 millimetre = 1/1000 metre

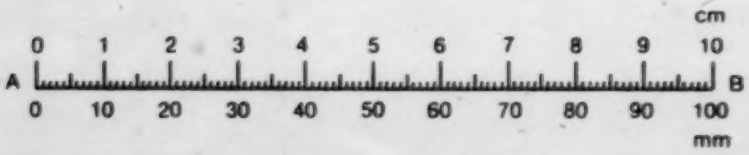
In symbols

1 mm = 0.001 m

or

1 m = 1000 mm

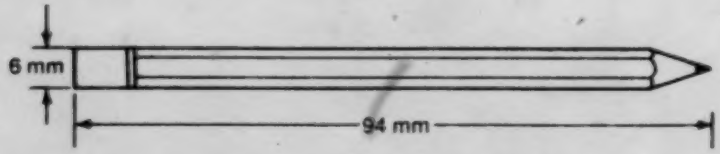
If you examine a metric ruler used to make accurate measurements, you will notice that each centimetre is divided into ten equal parts. Each part is one millimetre.



The line segment AB is 10 cm or 100 mm long. Each centimetre is divided into ten millimetres.

The millimetre is used to express dimensions of tacks, nails, hinges, screws, nuts and bolts; sizes of wrenches; thicknesses of glass, plywood, lenses, sheet metal; widths of ribbon, tape; amounts of rainfall; and so on. In scientific work, the millimetre is used exclusively, rather than the centimetre.

If you like to measure small things quite accurately, use a centimetre ruler graduated in millimetres.



This pencil is 9.4 cm or 94 mm long. It is 0.6 cm or 6 mm wide.

The Kilometre

Another linear unit which you will need to know is the kilometre (km). The kilometre is used for measuring long distances. Since *kilo* means one thousand

1 kilometre = 1000 metres

In symbols

1 km = 1000 m

Road signs in most countries of the world give distances in kilometres. Very soon, Canadian and American signs will too. By that time, automobile manufacturers will be producing cars which will show speed in kilometres per hour (km/h). These cars will also use metric units for measuring engine capacity, oil capacity and gasoline capacity.

The concept of one kilometre is a little more difficult to grasp than that of one metre, because it is a unit used for long distances. But since you have mastered the metre, you need only think in terms of 1000 m to master the kilometre.

How long is a kilometre? To find out, measure 100 m of string with your metre tape. Persuade someone to hold one end, or tie it to a tree. Walk until the string is taut. Ten times this distance is a kilometre. The neighbours may wonder a bit at your actions, but if you do this you will have a good idea of one kilometre.

An average city block is about 100 m long. So if you walk about ten blocks, you will have walked one kilometre. Race courses for thoroughbreds range from 1.8 to 2.4 km. The city speed limit may be 50 km/h. A good par three golf hole might be about 165 m long, a par four 330 m and a par five perhaps 460 m. During a round of golf you might walk 6500 m or 6.5 km if you don't stray too much. On a bad day, add another kilometre.

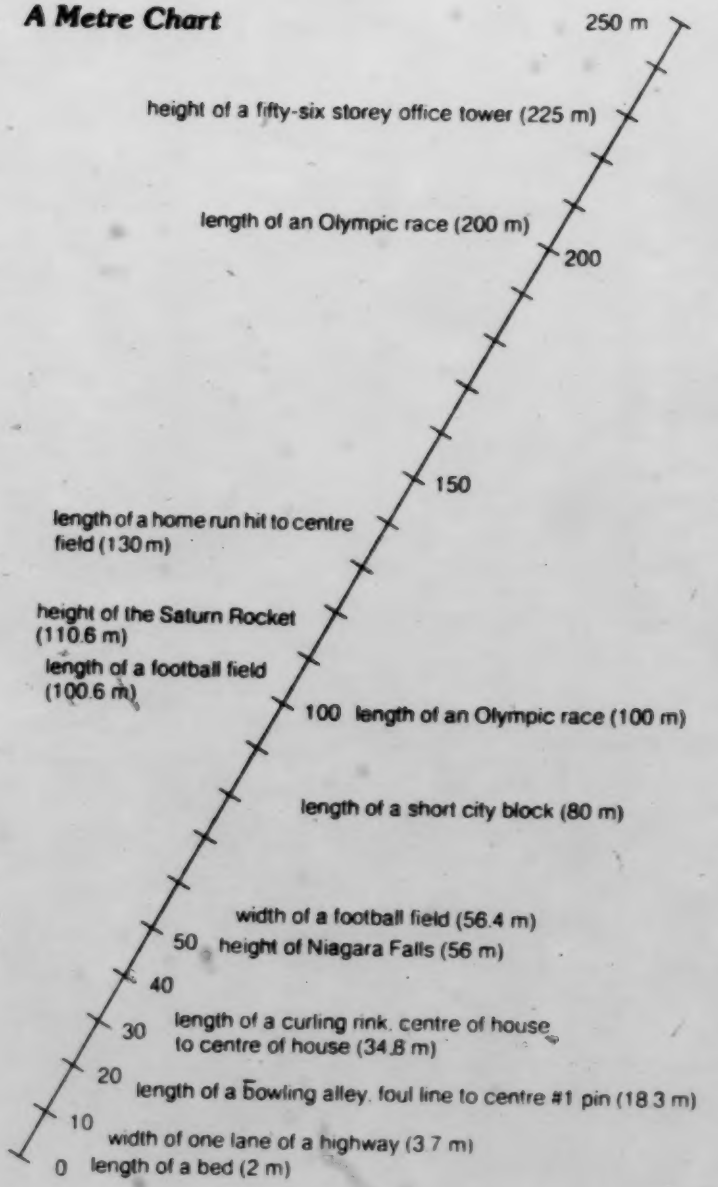
Remember

1000 metres = 1 kilometre

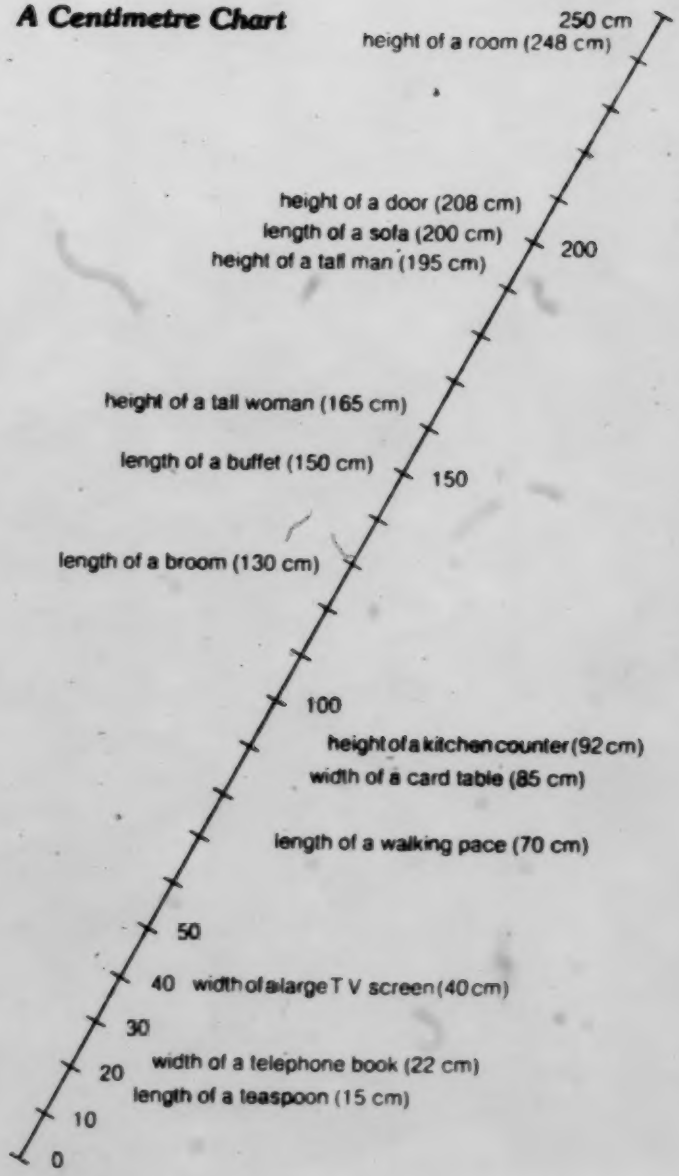
1000 m = 1 km

The word "kilometre" is pronounced with the accent on the first syllable. This pronunciation is consistent with that of other metric units, such as the centimetre and the millilitre. Putting the accent on the second syllable is usually reserved for instruments of measurement, such as the speedometer and the thermometer.

A Metre Chart


250 m
height of a fifty-six storey office tower (225 m)
length of an Olympic race (200 m)
200
150
length of a home run hit to centre field (130 m)
height of the Saturn Rocket (110.6 m)
length of a football field (100.6 m)
100 length of an Olympic race (100 m)
length of a short city block (80 m)
width of a football field (56.4 m)
50 height of Niagara Falls (56 m)
40
30 length of a curling rink, centre of house to centre of house (34.8 m)
20 length of a bowling alley, foul line to centre #1 pin (18.3 m)
10 width of one lane of a highway (3.7 m)
0 length of a bed (2 m)

A Centimetre Chart


250 cm
height of a room (248 cm)
height of a door (208 cm)
length of a sofa (200 cm)
height of a tall man (195 cm)
200
height of a tall woman (165 cm)
length of a buffet (150 cm)
150
length of a broom (130 cm)
100
height of a kitchen counter (92 cm)
width of a card table (85 cm)
length of a walking pace (70 cm)
50
40 width of a large T V screen (40 cm)
30
20 width of a telephone book (22 cm)
length of a teaspoon (15 cm)
10
0

The set of objectives below will aid you in determining the aims for the teaching exercise-lesson.

This list should be referred to in conjunction with the pre-test analysis for your class.

Conditions/definitions applying to all objectives.

N.B. In order to present a condensed list of objectives in hierarchical order the conditions/definitions applying to each objective has been isolated. Student teachers should be thoroughly familiar with these conditions/definitions.

a) 'Knowledge' is defined as 'the ability of the child to correctly choose from a list of common objects the object which most closely approximates the length of the given metric linear measurement unit.'

b) 'Comprehension' is defined as 'the ability of the child to correctly choose from a list of metric linear measurement units the unit which most closely approximates the length of a given common object.'

c) 'Application' is defined as 'the ability of the child to correctly choose from a list of multiples of a linear measurement unit, e.g. 4 millimetres, 40 millimetres, 400 millimetres, the measure which most closely approximates the length of a given common object, e.g. a cup.

Note. Within the above conditions/definitions the 'ability of the child', i.e. knowledge, comprehension or application will be defined as 'the result obtained by the child on a timed multi-choice test of metric linear measurement. This test to be conducted within 24 hours in the same setting, i.e. classroom, in which the metric linear measurement exercise-lesson was given.

Hierarchical List of Objectives.

Order	Objective
1	To teach knowledge of a centimetre
2	To teach comprehension of a centimetre
3	To teach application of a centimetre
4	To teach knowledge of a decimetre
5	To teach comprehension of a decimetre
6	To teach application of a decimetre
7	To teach knowledge of a metre
8	To teach comprehension of a metre
9	To teach application of a metre

Order	Objective
10	To teach knowledge of a kilometre
11	To teach comprehension of a kilometre
12	To teach application of a kilometre
13	To teach knowledge of a millimetre
14	To teach comprehension of a millimetre
15	To teach application of a millimetre
16	To teach knowledge of a decametre
17	To teach comprehension of a decametre
18	To teach application of a kilometre
19	To teach knowledge of a hectametre
20	To teach comprehension of a hectametre
21	To teach application of a hectametre

My Cooperating Teacher

		Circle only one		
1.	Is this cooperating teacher usually kind to you?	Yes	?	No
2.	Is this cooperating teacher often authoritarian and overly direct?	Yes	?	No
3.	Has this cooperating teacher discussed many interesting facts and theories concerning teaching with you?	Yes	?	No
4.	Do most of the students like this cooperating teacher?	Yes	?	No
5.	Do you like this cooperating teacher?	Yes	?	No
6.	Does this cooperating teacher really know subject matter content?	Yes	?	No
7.	Do you learn a lot of things from this cooperating teacher?	Yes	?	No
8.	Does this cooperating teacher understand your feelings?	Yes	?	No
9.	Does this cooperating teacher help you learn?	Yes	?	No
10.	Would you recommend working with this cooperating teacher to another student?	Yes	?	No
11.	Do most students think your cooperating teacher is a good one?	Yes	?	No
12.	Is this cooperating teacher easily annoyed or bothered?	Yes	?	No
13.	Are you hesitant to be yourself with this cooperating teacher?	Yes	?	No
14.	Does this cooperating teacher usually laugh with the students when something funny happens?	Yes	?	No
15.	Does this cooperating teacher really know how to teach?	Yes	?	No
16.	Would you like to have a different cooperating teacher if you could?	Yes	?	No

17.	Would you like to have this cooperating teacher for a district supervisor or principal when you begin teaching?	Yes	?	No
		Yes	?	No
18.	Does this cooperating teacher seem interested in your extra-curricular activities?	Yes	?	No
19.	Does this cooperating teacher make difficult things easy to understand?	Yes	?	No
20.	Does this cooperating teacher challenge you to think for yourself?	Yes	?	No
21.	Is this one of the best teachers you ever had?	Yes	?	No
22.	Are you afraid to ask this cooperating teacher for help?	Yes	?	No
23.	Would this cooperating teacher speak to you when he meets you on the street	Yes	?	No
24.	Does this co-operating teacher explain his instructions clearly?	Yes	?	No
25.	Do students like this cooperating teacher?	Yes	?	No
26.	Have you usually enjoyed the conferences you have had with this cooperating teacher?	Yes	?	No
27.	Would you like your best friend to work with this cooperating teacher?	Yes	?	No
28.	Is this cooperating teacher up-to-date on innovations in educational theory and methods?	Yes	?	No
29.	Has this cooperating teacher suggested teaching aids or readings to you that have been beneficial in your teaching?	Yes	?	No
30.	Does this cooperating teacher seem easy to approach?	Yes	?	No
31.	Does this cooperating teacher give good reasons for his ideas and suggestions?	Yes	?	No
32.	Is it easy for you to go to this cooperating teacher with your problems?	Yes	?	No
33.	If you could start all over again, would you prefer to work with another cooperating teacher?	Yes	?	No

APPENDIX C:

STUDENT TEACHER QUESTIONNAIRE

STUDENT TEACHER QUESTIONNAIRE NAME.....

CO-OPERATING TEACHER..... SCHOOL.....

Marking questionnaire. / / ø / / The central / (ø) is the mid-point of the scale.

Circle or check on a /, i.e. ✓ or ø

1. How convinced are you of the necessity of the changeover to metrics in Canada

/——/——/——/——/

not at all to a great extent

2. To what extent do you consider that metrics should be introduced into the schools in the way that you were asked to do ?

/——/——/——/——/

not done this way done this way

3. The effect of this lesson on the relationship between you and the co-operating teacher you were with was

/——/——/——/——/

very negative very positive

4. To what extent do you think that this lesson would influence the co-operating teacher's evaluation of you for the total Ed. Pra. conducted this term ?

/——/——/——/——/

not at all a great deal

5. What was your co-operating teacher's overall reaction to the task assigned to you by the researcher ?

/——/——/——/——/

very unfavourable very favourable

6. To what extent did you believe that the lesson on metrics would be used for purposes of evaluating you ?

/——/——/——/——/

not at all a great deal

7. In your interpretation of tee objectives to teach in your lesson, did you realise that the pre-test results and the hierarchy of objectives should be related ?

/——/——/——/——/

not at all entirely

8. The information provided to you in the kit about what you were required to do was found to be

/——/——/——/——/
very inadequate — most adequate

9. To what extent were you influenced in your teaching by the handout in the kit entitled 'Teaching Strategies for Student Teachers' ?

/——/——/——/——/
not at all — a great deal

10. Your knowledge of metrics prior to this lesson was

/——/——/——/——/
very poor — very good

11. How did you find the teaching of metrics, in this lesson ?

/——/——/——/——/
very difficult — very easy

12. At the time of your lesson on metrics how would you rate your knowledge of metrics as suitable for the instruction of the lesson ?

/——/——/——/——/
very inadequate — very adequate

13. Compared to other lesson you taught during student teaching how would you rate the teaching of this lesson ?

N.B. /——/——/——/——/——/——/——/
very low — very high

14. Your preparation, e.g. lesson plan, provision of aids, for this lesson - compared to other lessons you taught - was

/——/——/——/——/
much worse — much better

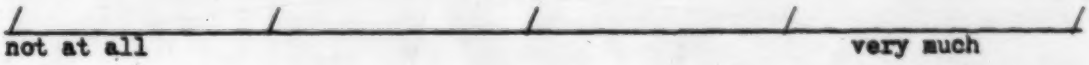
15. Were you always required by your co-operating teacher to produce lesson plans of the same quality as the one you produced for this lesson ?

/——/——/——/——/
never — always

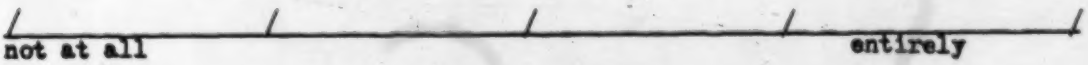
16. Your lesson on metrics was <u>mainly</u> (check <u>only one</u>)

lecture
discussion
group work
individual activity

17. To what extent do you consider this metric lesson a reflection of your teaching ability ?



18. To what extent did you interpret the objectives on the Hierarchical List of Objectives as being in the order you should attempt to teach them ?



19. If you were required to teach this lesson again, how would you change your strategy ? Please comment.

20. My general feeling about this whole activity has been ? Please be frank.
Favorable comments

Unfavorable comments

21. My choice of objectives for the metric lesson was affected by ?

22. My choice of strategy for the metric lesson was influenced by ?

N.B. Use back of sheet for further comments.

Additional information

Age. ..... Sex .....

Degree/s held ..... When (year) attained .....

List the number of courses you had achieved before you joined the PD/AD program

Science .....

Mathematics .....

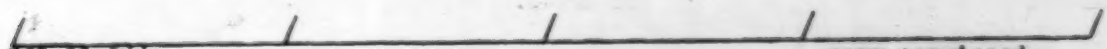
Arts .....

Other (please state) .....

What are your strongest interests ?

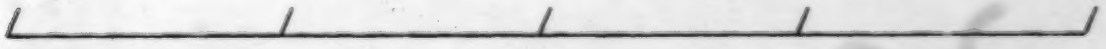
What type of teacher do you plan to be, i.e. what do you see the role of an elementary teacher as being ?

Are you convinced that you want to be a teacher ?



not at all very convinced

How would you rate yourself as a person, particularly as it effects your actions as a teacher ?



lacking confidence very confident

APPENDIX D:

LETTER FROM CO-OPERATING SCHOOL

Edmonton Public School Board

EDMONTON, ALBERTA

Edmonton, Alta.
November 18th, 1974

Mr. R. Preston
Faculty of Education
University of Alberta
Edmonton, Alta.

Dear Mr. Preston:

We, the undersigned cooperating teachers, feel the math teaching lesson is not a valid way of evaluating how effective the student teacher is in getting information across to a class. This type of thing puts undue pressure on the student teacher by:

1. limiting time spent on a new subject,
2. knowing evaluation is being done on that one lesson only.

A teacher is not limited to exactly 30 minutes to introduce a new subject and complete it. More time can and must be taken. The limited time allotted makes the teacher concentrate on getting the information covered, not necessarily as effectively, or in as interesting a manner, as he might if he wasn't under this type of pressure. Also, he might neglect the disciplining of students since he knows he has to cover the material and doesn't want to waste time.

The student teachers were really upset about this assignment.

The validity of this whole assignment, we feel, is very questionable.

Yours truly,

APPENDIX E:

TABLES OF CORRELATIONS

TABLE E-1

INTERCORRELATIONS AMONG CO-OPERATING TEACHER PERCEPTIONS OF STUDENT TEACHERS AND OTHER ITEM RESPONSES WITHIN CONSISTENT HIGH GAIN GROUP

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Consistent High Gain Group											
	6	7	8	9	10	11	12	13	14	15	16	17
1 Years as a teacher	-0.38	-0.38	-0.49	-0.22	-0.22	-0.38	-0.28	-0.23	-0.15	-0.49	-0.35	-0.19
2 Number of student teachers supervised	0.03	0.21	0.10	0.37	0.03	-0.00	0.06	0.23	0.22	-0.00	0.11	0.19
3 Number fac. consultants associated with	0.04	0.14	0.05	0.24	0.01	-0.09	0.01	0.20	0.23	-0.09	0.05	0.20
4 Value of student teaching experience	0.25	0.04	0.29	0.30	0.46	0.17	0.04	0.16	0.25	0.28	0.27	0.26
5 General quality of S.Ts. supervised	-0.16	-0.10	-0.15	-0.23	-0.18	-0.15	-0.22	-0.24	-0.27	-0.24	-0.17	-0.20
6 General view of student teacher	1.00	0.91	0.85	0.53	0.62	0.61	0.95	0.92	0.91	0.87	0.97	0.89
7 S.Ts. relations with pupils	0.91	1.00	0.89	0.54	0.21	0.82	0.92	0.91	0.97	0.82	0.91	0.89
8 S.Ts. relations with co-operating teacher	0.85	0.89	1.00	0.68	0.40	0.77	0.87	0.81	0.86	0.79	0.93	0.89
9 Relations with faculty consultant	0.53	0.59	0.68	1.00	0.10	0.59	0.56	0.60	0.51	0.62	0.64	0.59
10 Subject matter knowledge	0.62	0.21	0.40	0.10	1.00	0.58	0.60	0.55	0.59	0.64	0.64	0.63
11 Commitment to teaching	0.61	0.82	0.77	0.59	0.58	1.00	0.68	0.91	0.75	0.92	0.82	0.84
12 Energy and drive	0.95	0.92	0.87	0.56	0.60	0.68	1.00	0.91	0.89	0.79	0.94	0.88
13 Teaching skills	0.92	0.91	0.81	0.60	0.55	0.91	0.91	1.00	0.84	0.89	0.94	0.86
14 Originality, creative ability	0.91	0.87	0.86	0.51	0.59	0.75	0.89	0.84	1.00	0.69	0.93	0.78
15 Parity of lesson by co-operating teacher	0.87	0.82	0.79	0.62	0.64	0.93	0.79	0.85	0.68	1.00	0.83	0.84
16 Total "My Student Teacher" questionnaire	0.97	0.91	0.90	0.64	0.64	0.82	0.94	0.94	0.90	0.83	1.00	0.89
17 Final grade, if C.T. were fac.consultant	0.87	0.89	0.79	0.59	0.63	0.84	0.88	0.89	0.78	0.84	0.89	1.00
18 Clarity of presentation	0.71	0.66	0.63	0.21	0.63	0.72	0.69	0.74	0.74	0.61	0.78	0.71
19 Variety of use of techniques,materials	0.35	0.15	0.31	0.08	0.24	0.41	0.44	0.26	0.22	0.35	0.33	0.27
20 Task orientation of teaching behaviors	0.02	-0.09	-0.31	-0.33	0.22	0.25	0.16	0.16	-0.14	0.11	0.02	-0.19
21 Degree of pupil activity	0.24	0.07	0.03	-0.05	-0.00	0.28	0.40	0.22	0.25	0.09	0.16	0.24
22 Total of CIM questionnaire	0.68	0.59	0.29	0.09	0.28	0.55	0.68	0.29	0.49	0.40	0.61	0.39
23 Co-operating teacher's rating of lesson	0.15	-0.08	-0.11	-0.23	0.19	0.25	0.24	0.33	0.26	0.02	0.18	0.11
24 Affective merit dimension	0.79	0.85	0.79	0.48	0.62	0.84	0.77	0.79	0.77	0.81	0.92	0.84
25 Cognitive merit dimension	0.69	0.81	0.73	0.33	0.51	0.68	0.64	0.69	0.77	0.78	0.87	0.93
26 General merit dimension	0.46	0.59	0.61	0.22	0.31	0.51	0.40	0.44	0.53	0.56	0.62	0.69
27 Total MIT questionnaire	0.65	0.75	0.73	0.32	0.47	0.65	0.61	0.65	0.70	0.71	0.81	0.86
28 C.T. conviction for metric changeover	-0.16	-0.12	-0.28	-0.05	0.09	-0.29	-0.08	-0.19	-0.05	-0.23	-0.13	-0.15
29 Agreement with manner of presentation	-0.08	0.08	-0.03	-0.16	-0.01	-0.10	0.04	-0.01	0.13	-0.19	-0.3	0.16
30 Effect of lesson on C.T./S.T. relationship	-0.23	-0.12	0.02	0.16	-0.55	-0.06	0.02	-0.14	-0.19	-0.23	-0.16	0.04
31 Influence of lesson on term evaluation	-0.07	0.17	0.29	0.51	-0.33	-0.05	0.15	0.07	0.03	-0.13	0.07	-0.03
32 C.T. reaction to metrics lesson	-0.21	-0.04	0.12	-0.03	-0.34	-0.18	0.03	-0.22	-0.09	-0.24	-0.17	-0.21
33 Use of lesson to evaluate S.T.	0.24	0.39	0.58	0.59	0.02	0.36	0.43	0.30	0.32	0.25	0.36	0.41
34 Interpretation objs./ pre-test relationship	-0.19	-0.13	-0.25	0.38	-0.04	-0.10	-0.10	0.07	-0.19	-0.29	-0.07	-0.24
35 Adequacy of information in kit	-0.04	-0.07	-0.09	0.26	0.17	-0.20	0.00	-0.00	0.11	-0.22	-0.09	-0.18
36 Influence of "Teaching Strategies"	0.19	0.17	0.19	-0.28	0.59	0.32	0.12	0.09	0.22	0.02	0.24	0.03
37 Prior knowledge of metrics	-0.31	-0.40	-0.36	-0.69	0.18	-0.25	-0.28	-0.41	-0.29	-0.19	-0.38	-0.30
38 Value of teaching metrics	0.25	0.16	0.29	0.15	-0.00	0.13	0.17	0.25	0.26	0.06	0.22	0.16
39 Knowledge of metrics at time of lesson	-0.00	-0.13	-0.21	-0.30	0.50	-0.19	-0.02	-0.12	0.19	-0.18	-0.02	-0.11
40 S.T's. rating of lesson	0.07	0.05	0.13	0.15	-0.26	0.02	0.27	0.05	0.07	-0.11	0.04	-0.01
41 Comparison of lesson preparation	0.02	-0.13	-0.07	0.19	0.00	0.05	0.05	0.04	-0.19	0.02	0.03	-0.04
42 Requirement to provide lesson plans	0.24	0.09	-0.01	0.35	0.29	0.23	0.23	0.15	0.10	0.13	0.24	-0.02
43 Lesson as reflection of teaching ability	0.23	0.19	0.25	0.36	-0.31	0.15	0.43	0.24	0.29	-0.02	0.18	0.23
44 Interpretation of objs. as hierarchical	-0.14	0.03	-0.17	0.25	-0.23	0.01	-0.00	0.10	-0.22	-0.07	-0.06	-0.09
45 Conviction to be a teacher	0.71	0.72	0.64	0.24	0.63	0.78	0.62	0.70	0.67	0.74	0.76	0.79
46 Confidence as a teacher	0.67	0.71	0.76	0.57	0.59	0.81	0.61	0.72	0.66	0.74	0.77	0.79
47 Number of Science courses	-0.18	-0.45	-0.39	-0.19	-0.03	-0.28	-0.13	-0.24	-0.59	-0.17	-0.28	-0.15
48 Number of Mathematics courses	-0.12	-0.26	-0.31	-0.05	0.05	-0.09	-0.13	-0.34	-0.21	-0.02	-0.27	-0.13
49 Number of Arts courses	-0.05	0.05	-0.01	0.27	0.46	-0.01	-0.18	0.06	0.00	0.13	0.10	-0.08
50 Rating of lesson plan	-0.37	-0.52	-0.54	-0.49	0.38	-0.33	-0.51	-0.48	-0.47	-0.16	-0.36	-0.34
51 Pupil achievement - raw gain	0.32	0.37	0.38	0.02	-0.27	0.27	0.36	0.37	0.21	0.43	0.37	0.44
52 Pupil achievement - index of achievement	0.48	0.53	0.51	0.59	-0.01	0.43	0.53	0.47	0.41	0.47	0.49	0.54

* Variables #6-17 on the horizontal axis correspond to variables #6-17 on the vertical axis.

TABLE E-2

INTERCORRELATIONS AMONG CO-OPERATING TEACHER PERCEPTIONS OF STUDENT TEACHER AND OR ITEM RESPONSES WITHIN THE CONSISTENT LOW GAIN GROUP

	QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Consistent Low Gain Group											
		6	7	8	9	10	11	12	13	14	15	16	17
1	Years as a teacher	-0.19	-0.19	-0.26	-0.36	-0.04	-0.26	-0.11	-0.23	-0.31	0.09	-0.22	-0.08
2	Number of student teachers supervised	-0.05	-0.01	-0.04	-0.17	0.12	-0.21	-0.03	-0.14	-0.20	0.08	-0.08	-0.09
3	Number fac. consultants associated with	-0.00	-0.00	-0.12	-0.25	0.16	-0.10	0.07	-0.05	-0.11	0.14	-0.04	-0.16
4	Value of student teaching experience	-0.28	-0.38	-0.63	-0.04	-0.63	-0.23	-0.37	-0.28	-0.11	-0.38	-0.36	0.02
5	General quality of S.Ts. supervised	0.12	0.02	-0.12	0.21	-0.04	0.39	0.24	0.27	0.22	0.36	0.19	0.21
6	General view of student teacher	1.00	0.94	0.89	0.62	0.98	0.92	0.96	0.96	0.91	0.91	0.96	0.92
7	S.T's. relations with pupils	0.98	1.00	0.89	0.62	0.90	0.86	0.86	0.92	0.87	0.87	0.96	0.95
8	S.T's. relations with co-operating teacher	0.91	0.89	1.00	0.52	0.87	0.67	0.72	0.74	0.66	0.58	0.86	0.81
9	Relations with faculty consultant	0.62	0.62	0.52	1.00	0.30	0.52	0.40	0.57	0.54	0.61	0.67	0.33
10	Subject matter knowledge	0.86	0.90	0.87	0.30	1.00	0.75	0.83	0.81	0.74	0.53	0.94	0.87
11	Consistency in teaching	0.92	0.86	0.67	0.52	0.75	1.00	0.96	0.98	0.96	0.76	0.94	0.83
12	Energy and drive	0.96	0.86	0.72	0.40	0.83	0.96	1.00	0.96	0.92	0.77	0.93	0.89
13	Teaching skills	0.96	0.92	0.74	0.57	0.81	0.98	0.96	1.00	0.97	0.76	0.97	0.89
14	Criticality, creative ability	0.91	0.87	0.66	0.54	0.74	0.96	0.93	0.97	1.00	0.65	0.92	0.79
15	Rating of lesson by co-operating teacher	0.71	0.67	0.59	0.61	0.53	0.76	0.77	0.76	0.65	1.00	0.80	0.62
16	Total "My Student Teacher" questionnaire	0.98	0.96	0.86	0.67	0.84	0.94	0.93	0.97	0.92	0.80	1.00	0.94
17	Final grade, if C.T. were fac.consultant	0.88	0.93	0.81	0.32	0.87	0.83	0.89	0.89	0.73	0.82	0.92	1.00
18	Clarity of presentation	-0.24	-0.22	-0.18	-0.07	-0.28	-0.23	-0.25	-0.32	-0.38	0.01	-0.23	-0.05
19	Variety of use of techniques,materials	0.83	0.79	0.53	0.66	0.70	0.79	0.76	0.83	0.80	0.59	0.82	0.78
20	Task orientation of teaching behaviors	-0.03	-0.11	-0.03	0.23	-0.22	0.03	-0.08	0.02	0.03	0.03	-0.05	0.03
21	Degree of pupil activity	0.01	-0.08	-0.32	0.02	-0.09	0.21	0.16	0.17	0.12	0.33	0.06	0.19
22	Total of OSTA questionnaire	0.32	0.27	-0.08	0.48	0.11	0.33	0.33	0.38	0.32	0.51	0.34	0.43
23	Co-operating teacher's rating of lesson	0.68	0.59	0.35	0.57	0.67	0.78	0.71	0.77	0.73	0.67	0.77	0.67
24	Affective merit discussion	0.20	0.18	-0.07	0.29	-0.02	-0.02	-0.18	0.07	0.23	-0.24	0.16	0.21
25	Cognitive merit discussion	0.21	0.27	0.21	0.50	0.06	-0.08	-0.17	0.08	0.11	-0.25	0.12	0.12
26	General merit discussion	0.53	0.54	0.38	0.45	0.43	0.32	0.28	0.38	0.46	0.02	0.44	0.39
27	Total MCT questionnaire	0.32	0.36	0.21	0.48	0.15	0.04	-0.03	0.15	0.24	-0.19	0.21	0.13
28	S.T. exercises for metric changeover	0.03	-0.07	-0.37	-0.29	-0.13	0.15	0.06	0.08	0.13	-0.09	-0.07	0.02
29	Agreement with manner of presentation	0.00	-0.09	-0.38	0.16	-0.26	0.03	-0.15	-0.03	0.04	-0.05	-0.09	0.02
30	Effect of lesson on C.T./ S.T. relationship	0.03	-0.07	-0.35	-0.22	-0.16	0.17	0.03	0.05	0.09	-0.08	-0.06	0.07
31	Influence of lesson on term evaluation	0.28	0.19	-0.07	0.09	0.07	0.27	0.22	0.21	0.27	0.15	0.19	-0.11
32	C.T. reaction to metrics lesson	0.02	0.34	0.02	0.08	0.18	0.40	0.31	0.36	0.41	0.17	0.30	0.22
33	Use of lesson to evaluate S.T.	0.01	-0.06	-0.25	-0.50	0.04	0.09	0.19	0.03	0.07	0.05	-0.05	-0.13
34	Interpretation objs./ pre-test relationship	-0.20	-0.32	-0.55	-0.39	-0.31	-0.00	-0.11	-0.14	-0.09	-0.23	-0.27	-0.13
35	Adequacy of information in kit	-0.19	-0.30	-0.09	-0.27	-0.43	-0.08	-0.15	-0.13	-0.00	-0.35	-0.26	0.16
36	Influence of "Teaching Strategies"	0.27	0.31	-0.02	0.13	0.19	0.34	0.15	0.30	0.32	0.08	0.24	0.12
37	Prior knowledge of metrics	0.02	-0.05	-0.22	-0.06	-0.09	0.20	0.01	0.06	0.10	-0.16	-0.02	0.02
38	Ease of teaching metrics	-0.21	-0.29	-0.34	-0.02	-0.48	-0.12	-0.33	-0.22	-0.11	-0.42	-0.26	-0.11
39	Knowledge of metrics at time of lesson	-0.24	-0.33	-0.50	-0.21	-0.39	-0.04	-0.23	-0.19	-0.06	-0.49	-0.29	-0.27
40	S.T's. rating of lesson	-0.17	-0.27	-0.53	-0.00	-0.42	-0.07	-0.27	-0.17	-0.05	-0.41	-0.27	0.00
41	Comparison of lesson preparation	-0.19	-0.31	-0.51	-0.24	-0.43	-0.00	-0.15	-0.14	-0.02	-0.26	-0.25	0.02
42	Requirement to provide lesson plans	0.37	0.30	0.28	0.02	0.26	-0.55	0.07	0.01	0.44	0.27	0.17	0.26
43	Lesson as reflection of teaching ability	-0.29	-0.38	-0.58	-0.10	-0.39	-0.10	-0.25	-0.18	-0.06	-0.42	-0.32	0.12
44	Interpretation of objs. as hierarchical	-0.45	-0.54	-0.78	-0.28	-0.59	-0.31	-0.42	-0.42	-0.40	-0.25	-0.53	-0.05
45	Conviction to be a teacher	0.03	-0.07	-0.36	-0.28	-0.12	0.16	0.04	0.05	0.13	-0.14	-0.07	0.09
46	Confidence as a teacher	-0.05	-0.16	-0.44	-0.15	-0.31	-0.00	-0.15	-0.07	0.08	-0.39	-0.18	0.13
47	Number of Science courses	-0.67	-0.74	-0.64	-0.52	-0.68	-0.37	-0.44	-0.51	-0.44	-0.42	-0.61	-0.31
48	Number of Mathematics courses	0.20	0.18	0.33	-0.19	0.31	0.44	0.44	0.31	0.26	0.32	0.28	0.29
49	Number of Arts courses	0.26	0.10	-0.15	0.18	0.03	0.24	0.13	0.18	0.24	0.05	0.14	-0.07
50	Rating of lesson plan	-0.39	-0.41	-0.59	-0.24	-0.42	-0.50	-0.45	-0.43	-0.34	-0.39	-0.46	-0.06
51	Pupil achievement - raw gain	0.04	0.04	0.08	0.24	-0.20	-0.01	0.00	0.12	0.04	0.05	0.05	0.10
52	Pupil achievement - index of achievement	-0.18	-0.10	0.14	-0.01	0.07	-0.15	-0.15	-0.18	-0.37	0.15	-0.09	-0.07

* Variables #6-17 on the horizontal axis correspond to variables #6-17 on the vertical axis.

TABLE E-3

INTERCORRELATIONS AMONG CO-OPERATING TEACHER PERCEPTIONS OF STUDENT TEACHERS AND OTHER ITEM RESPONSES WITHIN INCONSISTENT GAIN GROUP

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER RESPONSES Inconsistent Gain Group											
	6	7	8	9	10	11	12	13	14	15	16	17
1 Years as a teacher	-0.04	-0.04	-0.03	0.06	-0.07	0.01	0.04	-0.03	0.07	0.12	0.21	0.21
2 Number of student teachers supervised	0.17	0.21	0.18	0.18	0.16	0.22	0.15	0.04	0.03	0.32	0.19	0.19
3 Number fac. consultants associated with	-0.06	0.01	-0.04	0.09	-0.03	0.01	-0.01	-0.10	-0.03	0.14	0.02	0.04
4 Value of student teaching experience	-0.03	-0.01	-0.08	-0.18	-0.04	-0.02	0.04	0.16	0.22	0.09	0.00	-0.15
5 General quality of S.Te. supervised	0.01	0.02	0.13	-0.21	0.01	0.11	0.17	0.00	-0.02	0.13	0.01	0.06
6 General view of student teacher	1.00	0.95	0.93	0.24	0.96	0.94	0.91	0.93	0.89	0.15	0.96	0.65
7 S.T's. relations with pupils	0.95	1.00	0.90	0.33	0.90	0.91	0.87	0.91	0.87	0.92	0.96	0.65
8 S.T's. relations with co-operating teacher	0.93	0.90	1.00	0.31	0.93	0.97	0.94	0.90	0.85	0.95	0.95	0.79
9 Relations with faculty consultant	0.29	0.33	0.31	1.00	0.32	0.28	0.16	0.16	0.19	0.29	0.23	0.28
10 Subject matter knowledge	0.90	0.90	0.93	0.32	1.00	0.91	0.87	0.88	0.85	0.93	0.94	0.74
11 Consistent to teaching	0.94	0.91	0.97	0.28	0.91	1.00	0.96	0.92	0.86	0.88	0.92	0.69
12 Energy and drive	0.91	0.87	0.94	0.16	0.87	0.96	1.00	0.92	0.89	0.86	0.92	0.68
13 Teaching skills	0.93	0.91	0.90	0.16	0.88	0.92	0.92	1.00	0.95	0.87	0.93	0.68
14 Criticality, creative ability	0.89	0.87	0.85	0.19	0.85	0.86	0.89	0.95	1.00	0.83	0.89	0.65
15 Rating of lesson by co-operating teacher	0.15	0.92	0.95	0.29	0.93	0.88	0.86	0.87	0.83	1.00	0.91	0.69
16 Total "My Student Teacher" questionnaire	0.95	0.96	0.95	0.23	0.94	0.92	0.92	0.93	0.89	0.91	1.00	0.79
17 Final grade, if C.T. were fac.consultant	0.65	0.65	0.79	0.28	0.74	0.69	0.68	0.68	0.65	0.69	0.79	1.00
18 Clarity of presentation	0.76	0.79	0.81	0.35	0.78	0.73	0.73	0.87	0.83	0.78	0.79	0.54
19 Variety of use of techniques, materials	0.69	0.72	0.71	0.24	0.72	0.65	0.66	0.72	0.71	0.65	0.73	0.54
20 Task orientation of teaching behaviors	0.76	0.75	0.71	0.07	0.68	0.74	0.77	0.81	0.71	0.77	0.73	0.63
21 Degree of pupil activity	0.72	0.75	0.71	0.30	0.79	0.70	0.74	0.72	0.77	0.69	0.79	0.63
22 Total of CSTL questionnaire	0.82	0.84	0.81	0.27	0.84	0.79	0.81	0.83	0.79	0.81	0.85	0.74
23 Co-operating teacher's rating of lesson	0.68	0.69	0.81	0.23	0.77	0.72	0.86	0.81	0.80	0.90	0.84	0.64
24 Affective merit discussion	-0.20	-0.25	-0.2	-0.16	-0.20	-0.25	-0.22	-0.30	-0.19	-0.16	-0.22	-0.17
25 Cognitive merit discussion	0.03	0.04	0.11	-0.15	0.12	0.17	0.11	0.03	0.02	0.12	0.06	0.07
26 General merit discussion	-0.06	-0.11	-0.01	0.25	-0.07	-0.04	-0.12	-0.19	-0.23	-0.22	-0.09	0.05
27 Total MCT questionnaire	-0.12	-0.12	-0.15	-0.06	-0.08	-0.03	-0.08	-0.14	-0.16	-0.18	-0.19	-0.14
28 S.T. conviction for metric changeover	-0.13	-0.05	-0.15	0.35	-0.13	-0.06	-0.06	-0.18	-0.23	-0.06	-0.09	-0.18
29 Agreement with manner of presentation	-0.18	-0.11	-0.22	0.00	-0.14	-0.03	-0.02	-0.22	-0.16	-0.04	-0.11	-0.18
30 Effect of lesson on C.T./ S.T. relationship	-0.22	-0.13	-0.14	0.42	-0.19	-0.14	-0.17	-0.33	-0.29	-0.20	-0.13	-0.17
31 Influence of lesson on term evaluation	-0.00	0.06	0.13	0.27	-0.00	0.01	0.03	0.04	0.10	0.13	0.09	0.14
32 C.T. reaction to metrics lesson	0.06	0.13	0.13	0.57	0.06	0.06	0.06	-0.06	0.00	0.07	0.08	0.08
33 Use of lesson to evaluate S.T.	-0.01	0.02	0.03	0.39	0.03	0.03	0.05	0.04	0.13	0.06	0.11	0.09
34 Interpretation obje./ pre-test relationship	-0.27	-0.20	-0.15	0.35	-0.22	-0.15	-0.16	-0.31	-0.24	-0.23	-0.15	-0.12
35 Adequacy of information in kit	-0.23	-0.13	-0.10	0.38	-0.22	-0.14	-0.13	-0.26	-0.23	-0.10	-0.10	-0.13
36 Influence of "Teaching Strategies"	-0.24	-0.28	-0.10	0.43	-0.26	-0.12	-0.16	-0.32	-0.29	-0.28	-0.16	-0.09
37 Prior knowledge of metrics	-0.21	-0.13	-0.07	-0.09	-0.06	-0.04	-0.03	-0.10	-0.08	-0.07	-0.08	-0.04
38 Ease of teaching metrics	-0.13	-0.09	-0.03	0.33	-0.02	-0.07	-0.02	-0.22	-0.15	-0.13	-0.09	-0.13
39 Knowledge of metrics at time of lesson	-0.19	-0.10	-0.07	0.24	-0.05	-0.08	-0.09	-0.19	-0.14	-0.12	-0.07	-0.15
40 S.T's. rating of lesson	-0.12	-0.06	-0.04	0.53	-0.01	-0.11	-0.16	-0.20	-0.06	-0.18	-0.00	-0.11
41 Comparison of lesson preparation	-0.07	-0.01	0.06	0.23	-0.03	0.03	0.00	-0.09	-0.02	-0.00	0.05	0.11
42 Requirement to provide lesson plans	-0.10	-0.01	0.07	0.36	-0.01	0.03	0.00	-0.10	-0.08	-0.02	0.04	0.10
43 Lesson as reflection of teaching ability	-0.11	-0.10	-0.09	0.27	-0.02	-0.16	-0.22	-0.18	-0.18	-0.25	-0.09	0.17
44 Interpretation of obje. as hierarchical	-0.07	-0.13	0.06	0.24	-0.01	0.02	0.03	-0.09	-0.14	-0.13	-0.00	-0.11
45 Conviction to be a teacher	-0.26	-0.21	-0.19	0.40	-0.26	-0.18	-0.19	-0.29	-0.28	-0.21	-0.16	-0.21
46 Confidence as a teacher	-0.27	-0.21	-0.24	0.18	-0.26	-0.25	-0.25	-0.31	-0.34	-0.26	-0.25	-0.24
47 Number of Science courses	-0.26	-0.27	-0.14	0.05	-0.12	-0.18	-0.17	-0.31	-0.19	-0.24	-0.19	-0.18
48 Number of Mathematics courses	-0.20	-0.15	-0.16	0.06	0.03	-0.14	-0.16	-0.19	-0.09	-0.09	-0.10	-0.08
49 Number of Arts courses	0.03	0.10	0.03	0.23	-0.14	0.03	0.05	-0.02	-0.07	0.02	0.03	0.03
50 Rating of lesson plan	-0.17	-0.14	-0.15	-0.29	-0.05	-0.10	-0.07	0.00	-0.01	-0.07	-0.11	-0.17
51 Pupil achievement - raw gain	-0.25	-0.16	-0.20	0.42	-0.24	-0.14	-0.26	-0.26	-0.29	-0.11	-0.14	-0.29
52 Pupil achievement - index of achievement	-0.37	-0.35	-0.33	-0.13	-0.38	-0.35	-0.37	-0.41	-0.42	-0.37	-0.39	-0.23

* Variables #6-17 on the horizontal axis correspond to variables #6-17 on the vertical axis.

TABLE E-4

INTERCORRELATIONS AMONG CO-OPERATING TEACHER OBSERVATION QUESTIONNAIRE RESPONSES AND OTHER ITEM RESPONSES

QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Consistent High Gain Group					
	18	19	20	21	22	23
1 Years as a teacher	0.18	-0.17	0.26	0.22	0.12	0.24
2 Number of student teachers supervised	0.34	-0.26	-0.09	-0.16	-0.05	-0.12
3 Number fac. consultants associated with	0.28	-0.28	-0.22	-0.15	-0.12	-0.16
4 Value of student teaching experience	-0.08	0.17	-0.09	-0.37	-0.21	-0.28
5 General quality of S.Ts. supervised	-0.16	-0.03	-0.05	-0.37	-0.20	-0.12
6 General view of student teacher	0.71	0.35	0.02	0.20	0.48	0.15
7 S.T's. relations with pupils	0.66	0.15	-0.04	0.07	0.31	-0.05
8 S.T's. relations with co-operating teacher	0.43	0.21	-0.31	0.03	0.20	-0.11
9 Relations with faculty consultant	0.21	0.08	-0.33	-0.05	0.00	-0.23
10 Subject matter knowledge	0.63	0.24	0.22	-0.03	0.38	0.14
11 Consistent to teaching	0.72	0.41	0.25	0.28	0.58	0.26
12 Energy and drive	0.69	0.48	0.10	0.40	0.58	0.26
13 Teaching skills	0.76	0.26	0.10	0.22	0.48	0.13
14 Originality, creative ability	0.74	0.22	-0.14	0.25	0.39	0.06
15 Rating of lesson by co-operating teacher	0.61	0.35	0.16	0.00	0.40	0.09
16 Total "My Student Teacher" questionnaire	0.70	0.33	0.00	0.16	0.43	0.08
17 Final grade, if C.T. were fac.consultant	0.60	0.23	-0.15	0.26	0.35	0.11
18 Clarity of presentation	1.00	0.08	0.42	0.42	0.63	0.36
19 Variety of use of techniques,materials	0.08	1.00	0.27	0.57	0.72	0.73
20 Task orientation of teaching behaviors	0.42	0.27	1.00	0.60	0.74	0.78
21 Degree of pupil activity	0.42	0.57	0.60	1.00	0.86	0.97
22 Total of OSTL questionnaire	0.63	0.72	0.74	0.86	1.00	0.91
23 Co-operating teacher's rating of lesson	0.36	0.73	0.78	0.97	0.91	1.00
24 Affective merit dimension	0.69	0.08	-0.01	0.02	0.26	-0.05
25 Cognitive merit dimension	0.70	-0.11	-0.11	-0.12	0.13	-0.21
26 General merit dimension	0.62	-0.21	-0.28	-0.35	-0.12	-0.29
27 Total MCT questionnaire	0.61	-0.11	-0.15	-0.18	0.07	-0.26
28 S.T. conviction for metric changeover	0.09	0.27	0.31	0.27	0.35	0.42
29 Agreement with manner of presentation	0.31	0.05	0.22	0.29	0.26	0.19
30 Effect of lesson on C.T./ S.T. relationship	-0.23	0.35	0.17	0.26	0.23	0.34
31 Influence of lesson on term evaluation	-0.19	0.17	-0.15	0.03	-0.07	-0.07
32 C.T. reaction to metrics lesson	-0.29	0.26	0.00	0.24	0.12	0.17
33 Use of lesson to evaluate S.T.	0.06	0.42	-0.07	0.13	0.21	0.07
34 Interpretation obje./ pre-test relationship	0.17	-0.15	0.28	0.25	0.15	0.15
35 Adequacy of information in kit	0.06	0.02	0.01	0.26	0.11	0.14
36 Influence of "Teaching Strategies"	0.33	0.18	0.19	-0.12	0.19	0.02
37 Prior knowledge of metrics	-0.03	0.41	0.28	0.21	0.32	0.51
38 Ease of teaching metrics	0.18	0.78	0.22	0.57	0.57	0.61
39 Knowledge of metrics at time of lesson	0.15	0.22	0.25	0.38	0.31	0.35
40 S.T's. rating of lesson	-0.12	0.57	0.15	0.55	0.40	0.55
41 Comparison of lesson preparation	-0.09	0.44	0.31	0.31	0.41	0.57
42 Requirement to provide lesson plans	0.24	0.38	0.35	0.38	0.43	0.33
43 Lesson as reflection of teaching ability	0.00	0.57	0.14	0.45	0.47	0.53
44 Interpretation of obje. as hierarchical	0.18	-0.09	0.44	0.19	0.20	0.11
45 Conviction to be a teacher	0.54	0.38	0.31	0.29	0.52	0.29
46 Confidence as a teacher	0.81	-0.04	-0.02	0.03	0.27	-0.07
47 Number of Science courses	0.00	0.21	0.18	0.59	0.32	0.47
48 Number of Mathematics courses	-0.03	0.32	0.42	0.27	0.32	0.49
49 Number of Arts courses	0.07	-0.01	-0.15	-0.59	-0.37	-0.46
50 Rating of lesson plan	-0.19	0.12	0.24	-0.19	-0.01	0.17
51 Pupil achievement - raw gain	0.20	0.00	-0.09	0.00	0.05	0.01
52 Pupil achievement - index of achievement	0.44	-0.00	0.07	0.12	0.20	0.00

* Variables #18-23 on the horizontal axis correspond to variables #18-23 on the vertical axis.

TABLE E-5

INTERCORRELATIONS AMONG CO-OPERATING TEACHER OBSERVATION QUESTIONNAIRE RESPONSES AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	CO-OPERATING TEACHER VARIABLES * Consistent Low Gain Group					
		18	19	20	21	22	23
1	Years as a teacher	0.21	-0.12	0.06	0.19	0.14	-0.14
2	Number of student teachers supervised	0.05	0.02	-0.08	-0.07	-0.02	-0.17
3	Number fac. consultants associated with	-0.03	0.13	0.10	0.18	0.18	0.01
4	Value of student teaching experience	0.17	-0.25	0.27	-0.04	0.01	-0.15
5	General quality of S.Ts. supervised	-0.06	0.35	0.63	0.77	0.77	0.69
6	General view of student teacher	-0.24	0.83	-0.03	0.01	0.32	0.58
7	S.T's. relations with pupils	-0.22	0.79	-0.11	-0.08	0.23	0.59
8	S.T's. relations with co-operating teacher	-0.10	0.53	-0.43	-0.32	-0.08	0.21
9	Relations with faculty consultant	-0.07	0.68	0.23	0.02	0.40	0.57
10	Subject matter knowledge	-0.26	0.78	-0.22	-0.09	0.11	0.67
11	Consistent to teaching	-0.23	0.79	0.02	0.21	0.43	0.76
12	Energy and drive	-0.29	0.76	-0.08	0.18	0.33	0.71
13	Teaching skills	-0.32	0.83	0.02	0.17	0.39	0.77
14	Originality, creative ability	-0.38	0.80	0.02	0.12	0.32	0.72
15	Rating of lesson by co-operating teacher	0.03	0.59	0.02	0.33	0.51	0.67
16	Total "By Student Teacher" questionnaire	-0.23	0.82	-0.05	0.06	0.34	0.71
17	Final grade, if C.T. were fac.consultant	-0.44	0.36	0.00	0.19	0.09	0.45
18	Clarity of presentation	1.00	-0.50	-0.34	-0.33	-0.13	-0.43
19	Variety of use of techniques,materials	-0.50	1.00	0.43	0.35	0.63	0.85
20	Task orientation of teaching behaviors	-0.34	0.43	1.00	0.78	0.83	0.61
21	Degree of pupil activity	-0.33	0.35	0.78	1.00	0.81	0.67
22	Total of CSTL questionnaire	-0.10	0.62	0.83	0.81	1.00	0.84
23	Co-operating teacher's rating of lesson	-0.43	0.85	0.61	0.67	0.84	1.00
24	Affective merit dimension	-0.18	0.19	0.23	-0.24	-0.01	0.09
25	Cognitive merit dimension	-0.22	0.21	0.08	-0.05	-0.17	-0.06
26	General merit dimension	-0.12	0.49	-0.04	-0.53	-0.07	0.13
27	Total MCT questionnaire	-0.20	0.31	0.08	-0.45	-0.12	0.03
28	S.T. conviction for metric changeover	0.36	-0.06	0.15	0.11	0.24	0.05
29	Agreement with manner of presentation	0.48	-0.04	0.33	0.04	0.34	0.07
30	Effect of lesson on C.T./ S.T. relationship	0.42	-0.08	0.24	0.24	0.38	0.14
31	Influence of lesson on term evaluation	0.43	0.15	0.00	-0.17	0.19	0.08
32	C.T. reaction to metrics lesson	0.38	0.22	0.08	-0.03	0.29	0.21
33	Use of lesson to evaluate S.T.	0.22	-0.10	-0.12	0.07	0.03	-0.08
34	Interpretation objs./ pre-test relationship	0.40	-0.17	0.30	0.25	0.34	0.05
35	Adequacy of information in kit	0.34	-0.31	0.08	0.02	0.02	-0.11
36	Influence of "Teaching Strategies"	0.21	0.36	0.40	0.14	0.51	0.26
37	Prior knowledge of metrics	0.31	0.03	0.24	0.15	0.33	0.23
38	Ease of teaching metrics	0.23	-0.06	0.48	0.10	0.30	0.05
39	Knowledge of metrics at time of lesson	0.27	-0.17	0.27	0.09	0.17	0.09
40	S.T's. rating of lesson	0.23	-0.10	0.41	0.09	0.25	0.03
41	Comparison of lesson preparation	0.42	-0.27	0.13	0.04	0.12	-0.07
42	Requirement to provide lesson plans	0.43	0.03	-0.38	-0.20	-0.02	0.11
43	Lesson as reflection of teaching ability	0.16	-0.16	0.49	0.26	0.23	0.00
44	Interpretation of objs. as hierarchical	0.41	-0.22	0.55	0.40	0.41	0.09
45	Conviction to be a teacher	0.32	-0.03	0.22	0.16	0.29	0.10
46	Confidence as a teacher	0.16	-0.16	0.21	-0.07	0.05	-0.05
47	Number of Science courses	0.26	-0.63	0.00	0.18	-0.14	-0.39
48	Number of Mathematics courses	0.27	-0.06	-0.43	0.02	-0.05	0.10
49	Number of Arts courses	0.37	0.21	0.22	-0.03	0.24	0.17
50	Rating of lesson plan	-0.43	-0.09	0.52	0.33	0.11	-0.08
51	Pupil achievement - raw gain	0.21	-0.26	-0.50	-0.59	-0.51	-0.36
52	Pupil achievement - index of achievement	0.29	-0.07	0.04	0.21	0.21	0.02

* Variables #18-23 on the horizontal axis correspond to variables #18-23 on the vertical axis.

TABLE E-6

INTERCORRELATIONS AMONG CO-OPERATING TEACHER OBSERVATION QUESTIONNAIRE RESPONSES AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	PUPIL ACHIEVEMENT BY CLASSES Inconsistent Gain					
		18	19	20	21	22	23
1	Years as a teacher	-1.00	-0.00	0.00	-0.13	-0.00	0.05
2	Number of student teachers supervised	0.22	0.08	0.15	-0.16	0.00	0.15
3	Number fac. consultants associated with	0.02	0.01	-0.00	-0.17	-0.04	0.05
4	Value of student teaching experience	-0.31	-0.05	0.14	-0.00	-0.05	-0.02
5	General quality of S.Ts. supervised	0.19	-0.17	-0.00	0.03	0.01	0.24
6	General view of student teacher	0.74	0.69	0.76	0.72	0.87	0.84
7	S.T's. relations with pupils	0.79	0.72	0.75	0.75	0.84	0.84
8	S.T's. relations with co-operating teacher	0.81	0.71	0.73	0.77	0.85	0.85
9	Relations with faculty consultant	0.35	0.24	0.07	0.30	0.27	0.21
10	Subject matter knowledge	0.76	0.72	0.68	0.75	0.84	0.77
11	Commitment to teaching	0.73	0.65	0.74	0.70	0.75	0.82
12	Energy and drive	0.70	0.66	0.77	0.74	0.81	0.86
13	Teaching skills	0.67	0.72	0.81	0.75	0.83	0.81
14	Originality, creative ability	0.63	0.71	0.71	0.77	0.79	0.80
15	Rating of lesson by co-operating teacher	0.78	0.65	0.77	0.69	0.81	0.80
16	Total "My Student Teacher" questionnaire	0.79	0.73	0.73	0.79	0.85	0.84
17	Final grade, if C.T. were fac.consultant	0.74	0.64	0.66	0.68	0.76	0.64
18	Clarity of presentation	1.00	0.73	0.65	0.82	0.90	0.78
19	Variety of use of techniques,materials	0.73	1.00	0.67	0.81	0.85	0.80
20	Task orientation of teaching behaviors	0.65	0.67	1.00	0.67	0.85	0.72
21	Degree of pupil activity	0.82	0.81	0.67	1.00	0.92	0.82
22	Total of CSCL questionnaire	0.90	0.89	0.85	0.92	1.00	0.88
23	Co-operating teacher's rating of lesson	0.78	0.80	0.72	0.83	0.88	1.00
24	Affective merit dimension	-0.28	-0.26	-0.11	-0.28	-0.26	-0.27
25	Cognitive merit dimension	0.01	-0.02	-0.05	-0.09	-0.04	-0.05
26	General merit dimension	-0.18	-0.17	-0.27	-0.33	-0.27	-0.28
27	Total MCT questionnaire	-0.17	-0.18	-0.18	-0.29	-0.23	-0.24
28	S.T. conviction for metric changeover	0.04	0.07	-0.02	0.04	0.03	0.12
29	Agreement with manner of presentation	0.11	0.09	-0.17	0.13	0.03	0.18
30	Effect of lesson on C.T./ S.T. relationship	-0.04	-0.00	-0.21	-0.07	-0.12	-0.00
31	Influence of lesson on term evaluation	0.24	0.32	-0.07	0.23	0.19	0.31
32	C.T. reaction to metrics lesson	0.33	0.08	-0.11	0.23	0.14	0.22
33	Use of lesson to evaluate S.T.	0.14	0.19	-0.02	0.24	0.15	0.02
34	Interpretation objs./ pre-test relationship	-0.06	0.02	-0.21	0.03	-0.06	-0.04
35	Adequacy of information in kit	0.06	0.11	-0.19	0.04	-0.00	-0.02
36	Influence of "Teaching Strategies"	-0.10	-0.17	-0.35	-0.14	-0.22	-0.04
37	Prior knowledge of metrics	0.04	0.04	-0.17	0.24	0.03	0.14
38	Ease of teaching metrics	0.08	0.05	-0.32	0.12	-0.02	0.09
39	Knowledge of metrics at time of lesson	0.06	0.04	-0.21	0.24	0.04	0.12
40	S.T's. rating of lesson	0.04	0.16	-0.44	0.14	-0.03	0.02
41	Comparison of lesson preparation	0.12	0.22	-0.11	0.23	0.12	0.20
42	Requirement to provide lesson plans	0.18	0.22	-0.11	0.15	0.11	0.12
43	Lessons as reflection of teaching ability	0.03	0.20	-0.24	0.12	0.01	-0.00
44	Interpretation of objs. as hierarchical	0.17	0.10	-0.20	0.17	0.04	0.08
45	Conviction to be a teacher	-0.04	0.03	-0.20	0.05	-0.05	-0.02
46	Confidence as a teacher	-0.11	0.03	-0.23	-0.05	-0.11	0.00
47	Number of Science courses	-0.05	-0.13	-0.54	-0.11	-0.24	-0.16
48	Number of Mathematics courses	-0.07	-0.10	0.03	0.08	-0.01	-0.03
49	Number of Arts courses	0.10	0.19	0.15	0.14	0.16	0.21
50	Rating of lesson plan	-0.16	-0.00	-0.16	-0.07	-0.11	-0.06
51	Pupil achievement - raw gain	-0.20	-0.39	-0.36	-0.19	-0.32	-0.29
52	Pupil achievement - index of achievement	-0.27	-0.30	-0.34	-0.38	-0.38	-0.23

* Variables #18-23 on the horizontal axis correspond to variables #18-23 on the vertical axis.

TABLE E-7

INTERCORRELATIONS AMONG STUDENT TEACHER PERCEPTIONS OF CO-OPERATING TEACHERS AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Consistent High Gain				Consistent Low Gain				Inconsistent Gain			
		24	25	26	27	24	25	26	27	24	25	26	27
1	Years as a teacher	-0.22	-0.01	-0.15	-0.15	-0.06	0.33	-0.09	-0.23	0.22	-0.00	-0.29	-0.03
2	Number of student teachers supervised	0.23	0.37	0.26	0.29	0.04	-0.07	0.22	0.03	0.27	0.24	0.15	0.22
3	Number fac. consultants associated with	0.08	0.22	0.11	0.14	0.01	-0.23	0.13	-0.08	0.25	0.11	-0.19	0.11
4	Value of student teaching experience	0.04	0.08	0.13	0.08	0.43	0.25	0.21	0.36	0.16	-0.18	-0.42	-0.18
5	General quality of S.Ts. supervised	-0.12	-0.08	0.02	-0.05	-0.37	-0.40	-0.44	-0.44	0.12	0.23	0.05	0.18
6	General view of student teacher	0.79	0.69	0.66	0.65	0.20	0.21	0.53	0.32	-0.29	0.03	-0.06	-0.12
7	S.T's. relations with pupils	0.65	0.81	0.59	0.76	0.18	0.27	0.54	0.36	-0.25	0.04	-0.14	-0.12
8	S.T's. relations with co-operating teacher	0.79	0.73	0.61	0.73	-0.07	0.21	0.38	0.21	-0.27	0.11	-0.01	-0.05
9	Relations with faculty consultant	0.40	0.37	0.22	0.32	0.29	0.50	0.45	0.48	-0.24	-0.15	0.25	-0.06
10	Subject matter knowledge	0.42	0.51	0.31	0.42	-0.05	0.06	0.43	0.15	-0.28	0.12	-0.07	-0.08
11	Commitment to teaching	0.64	0.68	0.51	0.68	-0.02	-0.08	0.32	0.04	-0.25	0.17	-0.04	-0.03
12	Energy and drive	0.77	0.66	0.48	0.61	-0.10	-0.17	0.30	-0.03	-0.22	0.11	-0.12	-0.08
13	Teaching skills	0.79	0.69	0.64	0.65	0.07	0.04	0.34	0.15	-0.30	0.03	-0.18	-0.14
14	Originality, creative ability	0.77	0.77	0.53	0.70	0.20	0.11	0.46	0.24	-0.19	0.02	-0.23	-0.16
15	Rating of lesson by co-operating teacher	0.81	0.76	0.59	0.71	-0.24	-0.25	0.02	-0.19	-0.14	0.12	-0.22	-0.17
16	Total "My Student Teacher" questionnaire	0.82	0.75	0.62	0.71	0.06	0.12	0.44	0.21	-0.26	0.14	-0.21	-0.11
17	Final grade, if C.T. were fac.consultant	0.76	0.73	0.69	0.76	0.24	0.12	0.01	0.13	-0.25	0.07	-0.05	-0.04
18	Clarity of presentation	0.69	0.70	0.62	0.61	-0.18	-0.22	-0.12	-0.20	-0.26	0.01	-0.18	-0.17
19	Variety of use of techniques, materials	0.64	-0.11	-0.21	-0.11	0.19	0.21	0.49	0.31	-0.26	-0.02	-0.17	-0.18
20	Task orientation of teaching behaviors	-0.01	-0.11	-0.26	-0.15	0.23	0.08	-0.08	0.08	-0.11	-0.05	0.27	-0.14
21	Degree of pupil activity	0.02	-0.12	-0.15	-0.18	-0.24	-0.05	-0.50	-0.45	-0.28	-0.09	-0.33	-0.29
22	Total of OSTI questionnaire	0.26	0.13	-0.12	0.07	-0.01	-0.17	-0.07	-0.12	-0.26	-0.04	-0.27	-0.23
23	Co-operating teacher's rating of lesson	-0.05	-0.21	-0.41	-0.26	0.00	-0.06	0.13	0.00	-0.27	-0.06	-0.24	-0.24
24	Affective merit dimension	1.00	0.82	0.82	0.94	1.00	0.81	0.66	0.89	1.00	0.59	0.21	0.76
25	Cognitive merit dimension	0.82	1.00	0.90	0.98	0.81	1.00	0.67	0.95	0.59	1.00	0.42	0.87
26	General merit dimension	0.82	0.90	1.00	0.95	0.66	0.67	1.00	0.83	0.21	0.42	1.00	0.68
27	Total MJT questionnaire	0.94	0.98	0.95	1.00	0.89	0.95	0.83	1.00	0.76	0.87	0.68	1.00
28	S.T. conviction for metric changeover	-0.37	-0.23	-0.31	-0.33	0.29	-0.21	0.12	-0.01	-0.32	-0.24	-0.21	-0.22
29	Agreement with manner of presentation	0.08	0.22	0.19	0.15	0.53	0.17	0.22	0.29	0.06	0.09	-0.17	0.02
30	Effect of lesson on C.T./ S.T. relationship	-0.04	-0.15	-0.11	-0.12	0.17	-0.25	-0.02	-0.11	-0.22	-0.19	0.07	-0.11
31	Influence of lesson on term evaluation	0.09	0.05	0.03	0.03	0.40	0.02	0.56	0.28	-0.53	-0.29	-0.43	-0.37
32	C.T. reaction to metrics lesson	-0.08	-0.04	0.03	-0.02	0.08	0.07	0.42	0.28	-0.46	-0.51	-0.11	-0.48
33	Use of lesson to evaluate S.T.	0.37	0.36	0.35	0.37	0.01	-0.48	0.07	-0.24	-0.45	-0.43	-0.36	-0.33
34	Interpretation obje./ pre-test relationship	-0.25	-0.22	-0.39	-0.31	0.00	-0.48	-0.17	-0.27	-0.10	-0.21	-0.11	-0.10
35	Adequacy of information in kit	-0.35	-0.25	-0.50	-0.48	0.22	-0.14	-0.07	-0.24	-0.09	-0.20	-0.06	-0.14
36	Influence of "Teaching Strategies"	0.39	0.52	0.61	0.58	0.48	0.19	0.37	0.34	-0.24	-0.19	0.36	-0.04
37	Prior knowledge of metrics	-0.25	-0.14	-0.09	-0.17	-0.01	0.16	-0.06	-0.10	-0.22	0.07	-0.25	-0.15
38	Fear of teaching metrics	-0.09	-0.15	-0.30	-0.22	0.42	0.20	0.12	0.25	-0.36	-0.21	0.02	-0.21
39	Knowledge of metrics at time of lesson	-0.39	-0.23	-0.46	-0.39	0.11	-0.09	-0.03	-0.03	-0.27	-0.16	-0.12	-0.09
40	S.T's. rating of lesson	-0.09	-0.27	-0.45	-0.38	0.41	0.14	0.09	0.21	-0.33	-0.20	0.67	-0.09
41	Comparison of lesson preparation	-0.39	-0.45	-0.60	-0.49	0.17	-0.19	-0.03	-0.07	-0.30	-0.29	-0.21	-0.25
42	Requirement to provide lesson plans	-0.25	-0.29	-0.40	-0.37	-0.21	-0.14	0.09	-0.21	-0.00	-0.09	0.21	0.01
43	Lesson as reflection of teaching ability	-0.05	-0.25	-0.45	-0.28	0.42	0.02	-0.02	0.11	-0.38	-0.12	0.38	-0.21
44	Interpretation of obje. as hierarchical	-0.07	-0.03	-0.08	-0.06	0.08	-0.27	-0.19	-0.18	-0.49	-0.17	-0.09	-0.21
45	Conviction to be a teacher	0.47	0.30	0.22	0.33	0.24	-0.20	0.04	-0.03	-0.27	-0.31	-0.13	-0.18
46	Confidence as a teacher	0.67a	0.68a	0.69a	0.75a	0.58	0.20	0.29	0.34	-0.22	-0.19	-0.22	-0.19
47	Number of Science courses	-0.57	-0.59	-0.68	-0.66	-0.41	-0.52	-0.66	-0.58	-0.15	-0.01	-0.03	-0.09
48	Number of Mathematics courses	-0.19	-0.16	-0.12	-0.13	-0.71	-0.67	-0.38	-0.66	-0.24	-0.36	-0.19	-0.31
49	Number of Arts courses	0.02	0.21	0.18	0.15	0.53	0.13	0.53	0.36	-0.08	-0.15	0.05	-0.10
50	Rating of lesson plan	-0.53	-0.42	-0.40	-0.46	0.48	0.25	-0.06	0.24	-0.09	0.22	0.11	0.11
51	Pupil achievement - raw gain	0.46	0.35	0.29	0.37	0.00	0.11	0.26	0.19	-0.14	0.07	0.17	0.05
52	Pupil achievement - index of achievement	0.52a	0.42a	0.37a	0.46a	-0.49a	-0.33a	-0.51a	-0.51a	0.01	-0.02	0.10	0.03

* Variables #24-27 on the horizontal axis correspond to variables #24-27 on the vertical axis.

TABLE E-8

INTERCORRELATIONS AMONG STUDENT TEACHER'S ATTITUDES TOWARD THE INTRODUCTION OF METRICS AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Consistent High Gain		Consistent Low Gain		Inconsistent Gain	
		28	29	28	29	28	29
1	Years as a teacher	0.54	0.64	0.20	-0.00	0.02	0.05
2	Number of student teachers supervised	0.19	0.39	-0.05	-0.20	-0.00	0.12
3	Number fac. consultants associated with	0.29	0.34	0.12	-0.13	0.06	0.24
4	Value of student teaching experience	-0.27	-0.43	0.63	0.81	-0.19	-0.26
5	General quality of S.Te. supervised	0.36	0.16	0.15	0.20	0.01	0.25
6	General view of student teacher	-0.14	-0.06	0.03	0.22	-0.13	-0.16
7	S.T'e. relations with pupils	-0.18	0.04	-0.07	-0.09	-0.05	-0.11
8	S.T'e. relations with co-operating teacher	-0.29	-0.02	-0.37	-0.38	-0.05	-0.02
9	Relations with faculty consultant	-0.05	-0.16	-0.29	0.16	0.35	0.00
10	Subject matter knowledge	0.05	-0.01	-0.13	-0.16	-0.13	-0.18
11	Commitment to teaching	-0.29	-0.10	0.15	0.03	-0.06	-0.03
12	Energy and drive	-0.08	0.04	0.06	-0.15	-0.05	-0.02
13	Teaching skills	-0.19	-0.01	0.04	-0.03	-0.18	-0.22
14	Originality, creative ability	-0.05	0.13	0.13	0.04	-0.23	-0.16
15	Rating of lesson by co-operating teacher	-0.29	-0.18	-0.09	-0.05	-0.06	-0.09
16	Total "My Student Teacher" questionnaire	-0.23	-0.04	-0.07	-0.08	-0.05	-0.11
17	Final grade, if C.T. were fac.consultant	-0.19	0.16	0.05	0.02	-0.08	-0.08
18	Clarity of presentation	0.09	0.31	0.36	0.48	0.04	0.11
19	Variety of use of techniques,materials	0.27	0.05	-0.06	-0.04	0.07	0.09
20	Task orientation of teaching behaviors	0.31	0.22	0.15	0.23	-0.02	-0.17
21	Degree of pupil activity	0.37	0.29	0.11	0.08	0.04	0.13
22	Total of OSTL questionnaire	0.35	0.28	0.24	0.34	0.03	0.03
23	Co-operating teacher's rating of lesson	0.43	0.19	0.05	0.07	0.12	0.11
24	Affective merit dimension	-0.37	0.00	0.29	0.53	-0.32	0.06
25	Cognitive merit dimension	-0.23	0.22	-0.21	0.17	-0.36	0.09
26	General merit dimension	-0.33	0.19	0.12	0.22	-0.01	-0.17
27	Total MCT questionnaire	-0.33	0.15	-0.01	0.29	-0.20	0.00
28	S.T. conviction for metric changeover	1.00	0.69	1.00	0.79	1.00	0.43
29	Agreement with manner of presentation	0.69	1.00	0.79	1.00	0.43	1.00
30	Effect of lesson on C.T./ S.T. relationship	-0.11	0.16	0.95	0.81	0.77	0.61
31	Influence of lesson on term evaluation	-0.01	0.35	0.78	0.72	0.45	0.39
32	C.T. reaction to metrics lesson	0.27	0.52	0.88	0.79	0.56	0.42
33	Use of lesson to evaluate S.T.	-0.22	0.24	0.71	0.28	0.43	0.12
34	Interpretation obje./ pre-test relationship	-0.09	0.12	0.89	0.70	0.59	0.66
35	Adequacy of information in kit	0.09	0.05	0.83	0.77	0.53	0.49
36	Influence of "Teaching Strategies"	-0.03	0.28	0.76	0.75	0.45	0.37
37	Prior knowledge of metrics	0.64	0.46	0.67	0.61	0.44	0.40
38	Ease of teaching metrics	0.65	0.36	0.66	0.82	0.63	0.44
39	Knowledge of metrics at time of lesson	0.54	0.21	0.69	0.69	0.65	0.48
40	S.T'e. rating of lesson	0.35	-0.08	0.74	0.83	0.32	0.45
41	Comparison of lesson preparation	0.20	-0.21	0.86	0.81	0.63	0.67
42	Equipment to provide lesson plans	0.27	0.02	0.53	0.35	0.36	0.57
43	Lesson as reflection of teaching ability	0.28	0.03	0.88	0.79	0.39	0.37
44	Interpretation of obje. as hierarchical	0.16	0.49	0.69	0.76	0.35	0.37
45	Conviction to be a teacher	-0.01	-0.05	0.97	0.78	0.77	0.58
46	Confidence as a teacher	-0.28	-0.02	0.88	0.83	0.73	0.46
47	Number of Science courses	0.42	0.10	0.23	0.14	0.25	0.06
48	Number of Mathematics courses	0.43	0.04	0.13	-0.17	0.31	0.02
49	Number of Arts courses	-0.42	-0.19	0.88	0.83	0.52	0.32
50	Rating of lesson plan	0.28	-0.12	0.01	0.06	-0.26	-0.19
51	Pupil achievement - raw gain	-0.14	0.03	0.08	0.25	0.33	0.26
52	Pupil achievement - index of achievement	-0.59	-0.25	-0.42	-0.38	0.38	0.28

* Variables #28-29 on the horizontal axis correspond to variables #28-29 on the vertical axis.

TABLE E-9

INTERCORRELATIONS AMONG STUDENT TEACHER RATINGS OF EFFECTS OF THE METRIC LESSON ON THE RELATIONSHIP WITH THE CO-OPERATING TEACHER AND OTHER ITEM RESPONSES

QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES *											
	Consistent High Gain				Consistent Low Gain				Inconsistent Gain			
	30	31	32	33	30	31	32	33	30	31	32	33
1 Years as a teacher	0.20	0.24	0.21	-0.03	0.10	0.32	0.16	0.66	0.17	0.22	0.16	0.19
2 Number of student teachers supervised	0.06	0.33	0.00	0.16	-0.22	0.29	0.01	0.52	0.21	0.04	0.16	-0.24
3 Number fac. consultants associated with	-0.14	0.19	-0.15	-0.05	-0.02	0.33	0.13	0.65	0.25	0.26	0.24	-0.01
4 Value of student teaching experience	-0.41	-0.26	-0.42	-0.03	0.55	0.54	0.50	0.26	-0.22	-0.05	-0.31	0.06
5 General quality of S.Ts. supervised	-0.14	0.04	-0.06	-0.22	0.30	-0.14	0.04	-0.20	0.01	0.01	0.11	-0.37
6 General view of student teacher	-0.23	-0.07	-0.21	0.24	0.02	0.28	0.42	0.01	-0.22	-0.00	0.06	-0.01
7 S.Ts. relations with pupils	-0.12	0.17	-0.04	0.39	-0.07	0.19	0.34	-0.06	-0.15	0.05	0.13	0.02
8 S.Ts. relations with co-operating teacher	0.02	0.29	0.12	0.58	-0.35	-0.07	0.02	-0.25	-0.14	0.03	0.13	0.03
9 Relations with faculty consultant	0.14	0.51	-0.03	0.51	-0.22	0.09	0.06	-0.50	0.42	0.27	0.57	0.39
10 Subject matter knowledge	-0.51	-0.33	-0.39	0.02	-0.15	0.07	0.18	0.04	-0.19	-0.00	0.08	0.03
11 Commitment to teaching	-0.00	-0.06	-0.18	0.34	0.17	0.27	0.40	0.09	-0.14	0.01	0.06	0.03
12 Energy and drive	0.02	0.15	0.03	0.43	0.03	0.22	0.31	0.19	-0.17	0.03	0.06	0.05
13 Teaching skills	-0.14	0.07	-0.22	0.30	0.05	0.21	0.36	0.03	-0.33	0.04	-0.04	0.04
14 Originality, creative ability	-0.18	0.03	-0.09	0.33	0.09	0.27	0.41	0.07	-0.29	0.10	0.00	0.13
15 Rating of lesson by co-operating teacher	-0.23	-0.13	-0.24	0.25	-0.04	0.15	0.17	0.05	-0.20	0.13	0.07	0.04
16 Total "My Student Teacher" questionnaire	-0.14	0.07	-0.15	0.39	-0.06	0.19	0.30	-0.05	-0.13	0.09	0.15	0.11
17 Final grade, if C.T. were fac.consultant	0.04	-0.03	0.05	0.41	0.07	-0.11	0.22	-0.10	-0.17	0.04	0.19	0.01
18 Clarity of presentation	-0.23	-0.19	-0.28	0.06	0.42	0.43	0.34	0.22	-0.04	0.24	0.33	0.14
19 Variety of use of techniques,materials	0.25	0.17	0.38	0.42	-0.04	0.15	0.22	-0.10	-0.00	0.22	0.08	0.15
20 Task orientation of teaching behaviors	0.17	-0.15	0.00	-0.07	0.26	0.00	0.08	-0.12	-0.21	-0.07	-0.11	-0.02
21 Degree of pupil activity	0.36	0.03	0.24	0.13	0.24	-0.17	-0.03	0.07	-0.07	0.23	0.23	0.24
22 Total of CSTI questionnaire	0.21	-0.03	0.12	0.21	0.38	0.19	0.29	0.03	-0.12	0.19	0.14	0.15
23 Co-operating teacher's rating of lesson	0.34	-0.07	0.17	0.07	0.14	0.08	0.21	-0.08	-0.00	0.31	0.22	0.02
24 Affective merit dimension	-0.04	0.00	-0.04	0.37	0.17	0.40	0.48	0.01	-0.22	-0.53	-0.46	-0.45
25 Cognitive merit dimension	-0.15	0.05	-0.04	0.36	-0.25	0.02	0.07	-0.48	-0.19	-0.39	-0.51	-0.43
26 General merit dimension	-0.13	0.03	0.03	0.35	-0.03	0.36	0.42	0.07	0.07	-0.43	-0.11	-0.24
27 Total MCT questionnaire	-0.12	0.03	-0.02	0.37	-0.11	0.28	0.38	-0.24	-0.15	-0.57	-0.48	-0.53
28 S.T. conviction for metric changeover	-0.11	-0.01	0.27	-0.22	0.95	0.78	0.88	0.11	0.77	0.45	0.56	0.43
29 Agreement with manner of presentation	0.14	0.35	0.52	0.24	0.61	0.72	0.79	0.28	0.61	0.39	0.43	0.13
30 Effect of lesson on C.T./ S.T. relationship	1.00	0.73	0.77	0.72	1.00	0.65	0.83	0.54	1.00	0.48	0.67	0.40
31 Influence of lesson on term evaluation	0.73	1.00	0.76	0.61	0.65	1.00	0.86	0.69	0.48	1.00	0.58	0.59
32 C.T. reaction to metrics lesson	0.77	0.76	1.00	0.71	0.83	0.86	1.00	0.55	0.67	0.59	1.00	0.51
33 Use of lesson to evaluate S.T.	0.72	0.61	0.71	1.00	0.54	0.68	0.59	1.00	0.40	0.58	0.51	1.00
34 Interpretation objs./ pre-test relationship	0.26	0.35	-0.00	0.13	0.98	0.54	0.64	0.54	0.85	0.41	0.57	0.58
35 Adequacy of information in kit	0.12	0.29	-0.00	0.13	0.83	0.48	0.61	0.35	0.65	0.46	0.51	0.56
36 Influence of "Teaching Strategies"	-0.15	-0.20	0.09	0.24	0.81	0.65	0.87	0.51	0.56	0.39	0.51	0.25
37 Prior knowledge of metrics	0.13	-0.11	0.35	0.00	0.80	0.33	0.53	0.09	0.39	0.42	0.19	0.24
38 Ease of teaching metrics	0.27	0.33	0.37	0.23	0.72	0.42	0.51	0.03	0.73	0.46	0.64	0.44
39 Knowledge of metrics at time of lesson	-0.28	-0.19	-0.08	-0.20	0.76	0.35	0.45	0.12	0.69	0.41	0.46	0.37
40 S.Ts. rating of lesson	0.48	0.46	0.48	0.40	0.79	0.44	0.58	0.11	0.72	0.54	0.64	0.50
41 Comparison of lesson preparation	0.26	0.16	0.00	0.10	0.87	0.57	0.64	0.40	0.75	0.50	0.52	0.55
42 Requirement to provide lesson plans	-0.21	-0.03	-0.29	-0.14	0.56	0.47	0.54	0.29	0.44	0.40	0.50	0.24
43 Lesson as reflection of teaching ability	0.54	0.47	0.39	0.32	0.86	0.43	0.64	0.33	0.63	0.39	0.39	0.23
44 Interpretation of objs. as hierarchical	0.29	0.46	0.21	0.17	0.73	0.48	0.63	0.43	0.61	0.50	0.39	0.46
45 Conviction to be a teacher	-0.37	-0.36	-0.37	-0.12	0.98	0.67	0.84	0.58	0.62	0.54	0.55	0.61
46 Confidence as a teacher	-0.25	-0.02	-0.32	0.21	0.78	0.62	0.72	0.25	0.73	0.51	0.37	0.36
47 Number of science courses	-0.08	-0.26	-0.13	-0.38	0.30	-0.20	-0.19	0.02	0.29	0.39	0.42	0.49
48 Number of mathematics courses	-0.08	-0.51	0.09	-0.33	0.23	-0.06	0.04	0.12	0.13	0.13	0.18	0.29
49 Number of Arts courses	-0.25	0.04	-0.36	0.07	0.77	0.94	0.92	0.58	0.53	0.23	0.30	0.21
50 Rating of lesson plan	-0.32	-0.38	-0.32	-0.35	-0.06	-0.10	-0.09	0.12	-0.27	0.15	-0.34	-0.16
51 Pupil achievement - raw gain	0.30	0.39	0.13	0.33	-0.12	0.36	0.17	0.09	0.44	0.16	0.27	0.09
52 Pupil achievement - index of achievement	0.33	0.16	-0.11	0.36	-0.28	-0.49	-0.45	-0.38	0.56	0.03	0.18	-0.10

* Variables #30-33 on the horizontal axis correspond to variables #30-33 on the vertical axis.

TABLE E-10

INTERCORRELATIONS AMONG STUDENT TEACHER'S ASSESSMENT OF THE STUDENT TEACHER'S KIT AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Consistent High Gain				Consistent Low Gain				Inconsistent Gain			
		34	35	36	44	34	35	36	44	34	35	36	44
1	Years as a teacher	0.44	0.27	-0.16	0.37	0.11	-0.23	0.04	0.38	0.28	0.28	0.21	-0.21
2	Number of student teachers supervised	0.33	0.15	-0.15	0.27	-0.21	-0.50	-0.11	0.09	-0.00	0.03	0.04	-0.23
3	Number fac. consultants associated with	0.30	0.21	-0.31	0.19	-0.01	-0.38	0.04	0.24	0.31	0.26	0.27	-0.15
4	Value of student teaching experience	-0.17	0.07	0.13	-0.57	0.53	0.76	0.38	0.59	0.02	0.09	-0.19	-0.29
5	General quality of S.Ts. supervised	-0.19	-0.43	-0.21	0.22	0.43	0.25	0.27	0.35	-0.17	-0.11	0.11	-0.04
6	General view of student teacher	-0.19	-0.06	0.19	-0.14	-0.20	-0.19	0.37	-0.45	-0.27	-0.23	-0.24	-0.07
7	S.T's. relations with pupils	-0.13	-0.07	0.17	0.02	-0.32	-0.30	0.31	-0.54	-0.20	-0.13	-0.28	-0.13
8	S.T's. relations with co-operating teacher	-0.25	-0.09	0.19	-0.17	-0.55	-0.49	-0.02	-0.78	-0.15	-0.10	-0.18	0.04
9	Relations with faculty consultant	0.38	0.25	-0.28	0.25	-0.39	-0.27	0.13	-0.28	0.35	0.38	0.43	0.24
10	Subject matter knowledge	-0.04	0.17	0.59	-0.23	-0.31	-0.43	0.15	-0.58	-0.22	-0.22	-0.24	-0.01
11	Commitment to teaching	-0.10	-0.29	0.32	0.02	-0.00	-0.00	0.34	-0.31	-0.15	-0.14	-0.12	-0.18
12	Energy and drive	-0.10	0.00	0.12	-0.00	-0.11	-0.15	0.19	-0.42	-0.19	-0.13	-0.14	0.23
13	Directive skills	0.07	-0.03	0.09	0.18	-0.14	-0.13	0.30	-0.42	-0.31	-0.24	-0.12	-0.19
14	Originality, creative ability	-0.10	0.11	0.22	-0.20	-0.00	-0.00	0.32	-0.40	-0.24	-0.23	-0.29	-0.14
15	Rating of lessons by co-operating teacher	-0.20	-0.32	0.42	-0.07	-0.20	-0.30	0.04	-0.25	-0.23	-0.10	-0.24	-0.13
16	Total "My Student Teacher" questionnaire	-0.07	-0.01	0.24	-0.04	-0.27	-0.26	0.24	-0.50	-0.15	-0.10	-0.14	-0.05
17	Final grade, if C.T. were fac.consultant	-0.24	-0.19	0.42	-0.27	-0.43	0.16	0.12	-0.45	-0.12	-0.13	-0.03	-0.20
18	Clarity of presentation	0.17	0.06	0.33	0.18	0.40	0.34	0.21	0.41	-0.05	0.06	-0.19	0.19
19	Variety of use of techniques,materials	-0.15	0.02	0.14	-0.09	-0.17	-0.31	0.36	-0.22	0.02	0.11	-0.17	0.15
20	Task orientation of teaching behaviors	0.28	0.01	0.19	0.04	0.30	0.04	0.40	0.55	-0.21	-0.19	-0.35	-0.23
21	Degree of pupil activity	0.25	0.26	-0.12	0.19	0.29	0.02	0.14	0.40	0.02	0.04	-0.14	0.17
22	Total of OSU questionnaire	0.15	0.11	0.19	0.20	0.38	0.03	0.51	0.47	-0.06	-0.09	-0.22	0.28
23	Co-operating teacher's rating of lesson	0.15	0.14	0.02	0.11	0.05	-0.11	0.36	0.90	-0.04	-0.02	-0.04	0.38
24	Affective merit dimension	-0.25	-0.35	0.39	-0.07	0.00	0.22	0.48	0.98	-0.19	-0.08	-0.24	-0.09
25	Cognitive merit dimension	-0.22	-0.25	0.52	-0.03	-0.40	-0.14	0.19	-0.27	-0.21	-0.20	-0.19	-0.19
26	General merit dimension	-0.39	-0.30	0.61	-0.06	-0.17	-0.07	0.37	-0.19	-0.11	-0.04	0.34	-0.05
27	Total MCT questionnaire	-0.31	-0.40	0.58	-0.06	-0.27	-0.09	0.34	-0.18	-0.19	-0.14	-0.04	-0.39
28	S.T. conviction for metric changeover	-0.06	0.09	-0.03	0.16	0.89	0.83	0.75	0.69	0.69	0.53	0.45	0.35
29	Agreement with manner of presentation	0.12	0.05	0.28	0.49	0.70	0.77	0.75	0.70	0.66	0.49	0.37	0.33
30	Effect of lesson on C.T./ S.T. relationship	0.28	0.12	-0.15	0.25	0.94	0.83	0.89	0.73	0.65	0.65	0.56	0.49
31	Influence of lesson on term evaluation	0.35	0.29	-0.20	0.46	0.54	0.48	0.65	0.49	0.41	0.46	0.34	0.50
32	C.T. reaction to metrics lesson	-0.08	-0.00	0.09	0.21	0.64	0.61	0.67	0.42	0.58	0.51	0.51	0.34
33	Use of lesson to evaluate S.T.	0.13	0.13	0.20	0.17	0.54	0.35	0.31	0.43	0.59	0.54	0.25	0.46
34	Interpretation obje./ pre-test relationship	1.00	0.73	-0.34	0.59	1.00	0.83	0.66	0.83	1.00	0.80	0.54	0.68
35	Adequacy of information in kit	0.73	1.00	-0.30	0.37	0.83	1.00	0.51	0.58	0.80	1.00	0.54	0.55
36	Influence of "Teaching Strategies"	-0.34	-0.30	1.00	-0.14	0.66	0.51	1.00	0.51	0.54	0.54	1.00	0.54
37	Prior knowledge of metrics	-0.27	-0.15	0.03	-0.15	0.83	0.76	0.69	0.54	0.39	0.12	0.24	0.38
38	Ease of teaching metrics	0.09	0.20	-0.32	0.11	0.75	0.78	0.68	0.72	0.59	0.50	0.48	0.53
39	Knowledge of metrics at time of lesson	0.21	0.67	0.12	-0.19	0.84	0.88	0.55	0.64	0.61	0.30	0.34	0.28
40	S.T's. rating of lesson	0.13	0.32	-0.09	-0.08	0.80	0.87	0.70	0.69	0.60	0.49	0.47	0.45
41	Completion of lesson preparation	0.31	0.35	-0.39	0.01	0.89	0.98	0.54	0.68	0.84	0.61	0.45	0.48
42	Requirement to provide lesson plans	0.51	0.46	-0.24	0.02	0.58	0.59	0.35	0.64	0.56	0.67	0.65	0.38
43	Lesson as reflection of teaching ability	0.20	0.28	-0.62	0.15	0.85	0.88	0.71	0.71	0.50	0.25	0.20	0.41
44	Interpretation of obje. as hierarchical	0.59	0.07	-0.14	1.00	0.83	0.58	0.51	1.00	0.65	0.59	0.54	1.00
45	Conviction to be a teacher	-0.21	-0.37	0.18	0.12	0.93	0.85	0.81	0.69	0.96	0.75	0.61	0.62
46	Confidence as a teacher	0.03	-0.00	0.16	0.01	0.74	0.73	0.58	0.56	0.71	0.68	0.51	0.52
47	Number of Science courses	0.35	0.55	-0.28	-0.06	0.51	0.61	-0.22	0.40	0.29	0.21	0.18	0.49
48	Number of Mathematics courses	-0.61	-0.43	0.32	-0.40	0.26	0.23	-0.05	-0.17	0.18	-0.24	-0.07	-0.10
49	Number of Arts courses	0.47	0.39	0.23	0.03	0.65	0.55	0.04	0.60	0.59	0.70	0.44	0.32
50	Rating of lesson plan	0.11	0.24	0.22	-0.22	-0.03	-0.07	-0.01	0.30	-0.34	-0.20	0.13	0.02
51	Pupil achievement - raw gain	0.06	-0.21	-0.34	0.16	-0.23	0.20	-0.22	-0.24	0.33	0.18	0.49	0.15
52	Pupil achievement - index of achievement	0.19	-0.15	-0.13	0.13	-0.11	-0.08	-0.16	0.90	0.35	0.26	0.14	0.19

* Variables #34-36,44 on the horizontal axis correspond to variables #34-36,44 on the vertical axis.

TABLE E-11

INTERCORRELATIONS AMONG STUDENT TEACHER'S ACADEMIC BACKGROUND AND OTHER ITEM RESPONSES

QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES *								
	Consistent High Gain			Consistent Low Gain			Inconsistent Gain		
	37	38	39	37	38	39	37	38	39
1 Years as a teacher	0.65	0.34	0.17	-0.38	-0.28	-0.37	-0.16	-0.06	-0.27
2 Number of student teachers supervised	0.66	0.26	-0.18	-0.60	-0.44	-0.57	-0.31	-0.10	-0.21
3 Number fac. consultants associated with	0.01	0.33	0.00	-0.44	-0.34	-0.44	-0.04	0.01	-0.09
4 Value of student teaching experience	-0.05	-0.02	0.10	0.25	0.19	0.42	-0.14	-0.10	-0.27
5 General quality of S.Ts. supervised	0.24	0.32	-0.38	0.59	0.36	0.68	0.25	0.25	0.14
6 General view of student teacher	-0.21	0.25	-0.05	0.02	-0.21	-0.26	-0.29	-0.13	-0.11
7 S.T's. relations with pupils	-0.40	0.16	-0.13	-0.05	-0.29	-0.33	-0.13	-0.05	-0.11
8 S.T's. relations with co-operating teacher	-0.36	0.25	-0.21	-0.33	-0.56	-0.56	-0.07	-0.07	-0.19
9 Relations with faculty consultant	-0.69	0.15	-0.38	-0.09	-0.02	-0.21	-0.09	0.22	0.16
10 Subject matter knowledge	0.10	-0.09	0.50	-0.09	-0.44	-0.39	-0.06	-0.05	-0.22
11 Commitment to teaching	-0.25	0.13	-0.19	0.20	-0.12	-0.16	-0.09	-0.07	-0.06
12 Energy and drive	-0.28	0.27	-0.02	0.01	-0.33	-0.23	-0.03	-0.02	-0.14
13 Teaching skills	-0.41	0.25	-0.12	0.06	-0.22	-0.19	-0.16	-0.22	-0.19
14 Originality, creative ability	-0.29	0.26	0.10	0.10	-0.11	-0.08	-0.06	-0.15	-0.14
15 Rating of lesson by co-operating teacher	-0.19	0.04	-0.10	-0.16	-0.02	-0.08	-0.07	-0.13	-0.12
16 Total "My Student Teacher" questionnaire	-0.35	0.20	-0.09	-0.02	-0.29	-0.29	-0.09	-0.03	-0.07
17 Final grade, if C.T. were fac.consultant	-0.09	0.07	-0.20	0.02	-0.10	-0.07	-0.11	-0.10	-0.19
18 Clarity of presentation	-0.03	0.14	0.15	0.31	0.23	0.27	0.08	0.08	0.04
19 Variety of use of techniques,materials	0.01	0.19	0.22	0.03	-0.06	-0.17	0.04	0.05	0.16
20 Task orientation of teaching behaviors	0.18	0.22	0.25	0.26	0.48	0.27	-0.17	-0.22	-0.21
21 Degree of pupil activity	0.21	0.27	0.30	0.16	0.10	0.08	0.24	0.12	0.24
22 Total of OSIL questionnaire	0.32	0.27	0.31	0.33	0.30	0.17	0.03	-0.02	0.06
23 Co-operating teacher's rating of lesson	0.11	0.01	0.15	0.20	0.05	0.00	0.14	0.09	0.12
24 Affective cerit dimension	-0.25	-0.09	-0.39	-0.01	0.02	0.11	-0.22	-0.16	-0.27
25 Cognitive cerit dimension	-0.16	-0.15	-0.23	-0.16	0.20	-0.09	0.07	-0.21	-0.14
26 General cerit dimension	-0.09	-0.18	-0.44	-0.04	0.13	-0.03	-0.25	0.05	-0.12
27 Total PCT questionnaire	-0.17	-0.22	-0.39	-0.18	0.21	-0.12	-0.15	-0.21	-0.22
28 S.T. conviction for cerric changeover	0.68	0.65	0.54	0.67	0.66	0.69	0.66	0.63	0.65
29 Agreement with manner of presentation	0.65	0.36	0.21	0.61	0.62	0.68	0.60	0.62	0.63
30 Effect of lesson on C.T./ S.T. relationship	0.13	0.27	-0.28	0.60	0.73	0.76	0.35	0.73	0.60
31 Influence of lesson on term evaluation	-0.11	0.33	-0.19	0.33	0.42	0.35	0.42	0.66	0.49
32 C.T. reaction to cerric lesson	0.35	0.37	-0.08	0.53	0.51	0.45	0.19	0.64	0.46
33 Use of lesson to evaluate S.T.	0.00	0.23	-0.20	0.09	0.03	0.12	0.20	0.06	0.17
34 Interpretation objs./ pre-test relationship	-0.27	0.03	0.21	0.83	0.75	0.84	0.39	0.59	0.69
35 Adequacy of information in kit	-0.15	0.20	0.67	0.76	0.78	0.88	0.32	0.59	0.79
36 Influence of "Teaching Strategies"	0.43	-0.32	0.42	0.64	0.68	0.55	0.36	0.68	0.34
37 Prior knowledge of cerrics	1.00	0.34	0.35	1.00	0.81	0.92	1.00	0.51	0.43
38 Ease of teaching cerrics	0.35	1.00	0.38	0.81	1.00	0.91	0.51	1.00	0.68
39 Knowledge of cerrics at time of lesson	0.35	0.38	1.00	0.92	0.91	1.00	0.43	0.69	1.00
40 S.T's. rating of lesson	0.12	0.66	0.09	0.84	0.98	0.97	0.34	0.66	0.65
41 Comparison of lesson preparation	0.23	0.63	0.36	0.88	0.82	0.91	0.51	0.54	0.72
42 Requirement to provide lesson plans	-0.25	0.33	0.42	0.64	0.26	0.51	0.24	0.32	0.33
43 Lesson as reflection of teaching ability	-0.06	0.60	0.03	0.75	0.86	0.86	0.36	0.63	0.59
44 Interpretation of objs. as hierarchical	-0.15	0.14	-0.19	0.54	0.72	0.69	0.35	0.52	0.38
45 Conviction to be a teacher	-0.20	0.16	-0.12	0.80	0.75	0.79	0.06	0.56	0.40
46 Confidence as a teacher	-0.03	0.02	-0.13	0.67	0.85	0.83	0.04	0.57	0.52
47 Period of Science courses	0.17	0.31	0.63	0.65	0.34	0.63	0.22	0.49	0.46
48 Number of Mathematics courses	0.78	0.12	0.22	0.41	-0.14	0.25	0.43	0.11	0.25
49 Number of Arts courses	-0.23	-0.08	0.15	0.69	0.61	0.69	0.19	0.30	0.23
50 Rating of lesson plan	0.53	0.01	0.56	-0.35	0.10	-0.10	0.16	-0.01	-0.16
51 Pupil achievement - raw gain	-0.11	0.32	-0.54	-0.30	-0.07	-0.10	0.48	0.29	0.60
52 Pupil achievement - index of achievement	-0.43	-0.03	-0.42	0.03	-0.26	-0.17	0.49	0.52	0.39

* Variables #37-39 on the horizontal axis correspond to variables #37-39 on the vertical axis.

TABLE E-12

INTERCORRELATIONS AMONG STUDENT TEACHER RATINGS OF LESSON AND PREPARATION FOR THE LESSON AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Consistent High Gain Group				
		#40	#41	#42	#43	50
1	Years as a teacher	0.17	0.16	-0.11	0.12	0.14
2	Number of student teachers supervised	0.06	0.15	-0.17	0.05	-0.01
3	Number fac. consultants associated with	0.01	0.18	-0.00	0.10	0.03
4	Value of student teaching experience	-0.19	0.28	0.10	-0.20	0.42
5	General quality of S.Ts. supervised	-0.09	0.28	-0.04	0.00	0.19
6	General view of student teacher	0.07	0.02	0.24	0.23	-0.37
7	S.T's. relations with pupils	0.05	-0.13	0.09	0.19	-0.23
8	S.T's. relations with co-operating teacher	0.13	-0.07	-0.01	0.25	-0.24
9	Relations with faculty consultant	0.15	0.19	0.25	0.36	-0.43
10	Subject matter knowledge	-0.26	0.04	0.29	-0.31	0.38
11	Commitment to teaching	0.02	0.05	0.23	0.15	-0.23
12	Energy and drive	0.27	0.05	0.29	0.42	-0.51
13	Teaching skills	0.05	0.08	0.25	0.24	-0.42
14	Originality, creative ability	0.07	-0.10	0.10	0.20	-0.04
15	Rating of lesson by co-operating teacher	-0.11	0.02	0.12	-0.02	-0.18
16	Total "My Student Teacher" questionnaire	0.04	0.03	0.24	0.19	-0.24
17	Final grade, if C.T. were fac.consultant	-0.01	-0.24	-0.22	0.02	-0.42
18	Clarity of presentation	-0.12	-0.09	0.24	0.03	-0.18
19	Variety of use of techniques,materials	0.57	0.64	0.35	0.57	0.12
20	Task orientation of teaching behaviors	0.15	0.31	0.35	0.14	0.22
21	Degree of pupil activity	0.55	0.31	0.38	0.65	-0.14
22	Total of OSCL questionnaire	0.49	0.41	0.43	0.47	-0.01
23	Co-operating teacher's rating of lesson	0.55	0.57	0.33	0.53	0.17
24	Affective merit dimension	-0.09	-0.31	-0.25	-0.05	-0.29
25	Cognitive merit dimension	-0.27	-0.45	-0.29	-0.25	-0.42
26	General merit dimension	-0.45	-0.60	-0.46	-0.45	-0.49
27	Total MCT questionnaire	-0.30	-0.43	-0.37	-0.28	-0.46
28	S.T. conviction for metric changeover	0.15	0.20	0.21	0.24	0.24
29	Agreement with manner of presentation	-0.08	-0.21	0.02	0.03	-0.12
30	Effect of lesson on C.T./ S.T. relationship	0.48	0.26	-0.21	0.54	-0.32
31	Influence of lesson on term evaluation	0.46	0.16	-0.03	0.47	-0.34
32	C.T. reaction to metrics lesson	0.49	0.00	-0.29	0.39	-0.32
33	Use of lesson to evaluate S.T.	0.40	0.19	-0.14	0.32	-0.35
34	Interpretation objs./ pre-test relationship	0.13	0.21	0.51	0.20	0.11
35	Adequacy of information in kit	0.32	0.35	0.46	0.26	0.24
36	Influence of "Teaching Strategies"	-0.09	-0.38	-0.24	-0.02	0.22
37	Prior knowledge of metrics	0.12	0.23	-0.25	-0.08	0.53
38	Ease of teaching metrics	0.49	0.67	0.33	0.60	-0.07
39	Knowledge of metrics at time of lesson	0.84	0.26	0.42	0.02	0.54
40	S.T's. rating of lesson	1.00	0.63	0.00	0.68	-0.17
41	Comparison of lesson preparation	0.63	1.00	0.43	0.59	0.45
42	Requirement to provide lesson plans	0.00	0.43	1.00	0.30	0.19
43	Lesson as reflection of teaching ability	0.68	0.59	0.30	1.00	-0.36
44	Interpretation of objs. as hierarchical	-0.04	0.01	0.42	0.15	-0.22
45	Conviction to be a teacher	-0.21	0.04	0.51	0.09	-0.19
46	Confidence as a teacher	-0.04	-0.13	0.09	0.02	-0.39
47	Number of Science courses	0.17	0.30	0.53	0.28	0.33
48	Number of Mathematics courses	0.10	0.00	-0.31	-0.08	0.27
49	Number of Arts courses	-0.41	-0.00	0.06	-0.55	0.42
50	Rating of lesson plan	-0.17	0.45	0.19	-0.36	1.00
51	Pupil achievement - raw gain	0.41	0.23	-0.32	0.41	-0.42
52	Pupil achievement - index of achievement	0.23	0.06	-0.15	0.26	-0.53

* Variables #40-43,50 on horizontal axis correspond to variables #40-43,50 on vertical axis.

TABLE E-13

INTERCORRELATIONS AMONG STUDENT TEACHER RATINGS OF LESSON AND PREPARATION FOR THE LESSON AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Consistent Low Gain Group				
		#0	#1	#2	#3	50
1	Years as a teacher	-0.28	-0.16	-0.35	-0.07	0.43
2	Number of student teachers supervised	-0.49	-0.41	-0.45	-0.35	0.37
3	Number fac. consultants associated with	-0.37	-0.29	-0.38	-0.18	0.43
4	Value of student teaching experience	0.77	0.75	0.11	0.75	0.37
5	General quality of S.Ts. supervised	0.35	0.29	0.25	0.28	-0.29
6	General view of student teacher	-0.17	-0.19	0.37	-0.20	-0.39
7	S.T's. relations with pupils	-0.27	-0.31	0.30	-0.30	-0.41
8	S.T's. relations with co-operating teacher	-0.52	-0.51	0.28	-0.56	-0.59
9	Relations with faculty consultant	-0.08	-0.24	0.02	-0.30	-0.29
10	Subject matter knowledge	-0.42	-0.42	0.26	-0.39	-0.42
11	Commitment to teaching	-0.07	-0.00	0.55	-0.10	-0.50
12	Energy and drive	-0.27	-0.15	0.47	-0.25	-0.45
13	Teaching skills	-0.17	-0.14	0.41	-0.14	-0.49
14	Originality, creative ability	-0.05	-0.02	0.44	-0.06	-0.34
15	Rating of lesson by co-operating teacher	-0.41	-0.26	0.27	-0.42	-0.39
16	Total "My Student Teacher" questionnaire	-0.27	-0.25	0.37	-0.32	-0.46
17	Final grade, if C.T. were fac.consultant	0.00	0.02	0.26	0.10	-0.06
18	Clarity of presentation	0.23	0.42	0.43	0.16	-0.43
19	Variety of use of techniques,materials	-0.16	-0.27	0.03	-0.16	-0.09
20	Task orientation of teaching behaviors	0.41	0.13	-0.38	0.43	0.52
21	Degree of pupil activity	0.09	0.04	-0.20	0.20	0.23
22	Total of CSCI questionnaire	0.25	0.12	-0.02	0.23	0.11
23	Co-operating teacher's rating of lesson	0.03	-0.07	0.11	0.00	-0.08
24	Affective merit dimension	0.41	0.17	-0.21	0.42	0.49
25	Cognitive merit dimension	0.14	-0.19	-0.34	0.02	0.25
26	General merit dimension	0.09	-0.03	0.09	-0.02	-0.06
27	Total BCT questionnaire	0.21	-0.07	-0.21	0.11	0.28
28	S.T. conviction for metric changeover	0.76	0.66	0.53	0.69	0.01
29	Agreement with manner of presentation	0.83	0.81	0.35	0.79	0.06
30	Effect of lesson on C.T./ S.T. relationship	0.79	0.87	0.56	0.86	-0.06
31	Influence of lesson on term evaluation	0.44	0.57	0.47	0.43	-0.19
32	C.T. reaction to metrics lesson	0.58	0.64	0.54	0.64	-0.09
33	Use of lesson to evaluate S.T.	0.11	0.40	0.29	0.33	0.12
34	Interpretation objs./ pre-test relationship	0.80	0.89	0.50	0.85	-0.03
35	Adequacy of information in kit	0.87	0.98	0.59	0.88	-0.07
36	Influence of "Teaching Strategies"	0.70	0.56	0.35	0.71	-0.01
37	Prior knowledge of metrics	0.88	0.80	0.44	0.75	-0.35
38	Ease of teaching metrics	0.98	0.82	0.24	0.88	0.10
39	Knowledge of metrics at time of lesson	0.93	0.91	0.51	0.84	-0.14
40	S.T's. rating of lesson	1.00	0.88	0.35	0.93	0.07
41	Comparison of lesson preparation	0.89	1.00	0.61	0.86	-0.11
42	Requirement to provide lesson plans	0.35	0.61	1.00	0.27	-0.79
43	Lesson as reflection of teaching ability	0.93	0.86	0.27	1.00	0.25
44	Interpretation of objs. as hierarchical	0.69	0.68	0.04	0.71	0.30
45	Conviction to be a teacher	0.72	0.88	0.16	0.69	-0.21
46	Confidence as a teacher	0.91	0.88	0.40	0.91	0.12
47	Number of Science courses	0.43	0.59	0.24	0.41	-0.07
48	Number of Mathematics courses	-0.05	0.23	0.78	-0.07	-0.89
49	Number of Arts courses	0.62	0.63	0.38	0.62	0.02
50	Rating of lesson plan	0.07	-0.11	-0.79	0.25	1.00
51	Pupil achievement - raw gain	-0.03	0.15	0.19	-0.08	-0.07
52	Pupil achievement - index of achievement	-0.31	-0.37	-0.12	-0.38	-0.31

* Variables #40-43,50 on horizontal axis correspond to variables #40-43,50 on vertical axis.

TABLE E-14

INTERCORRELATIONS AMONG STUDENT TEACHER RATINGS OF LESSON AND PREPARATION FOR THE LESSON AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Inconsistent Gain Group				
		#0	#1	#2	#3	#0
1	Years as a teacher	-0.05	0.11	0.16	-0.18	-0.02
2	Number of student teachers supervised	-0.03	-0.10	0.17	-0.15	-0.16
3	Number fac. consultants associated with	0.10	0.16	0.36	-0.05	0.09
4	Value of student teaching experience	-0.27	0.01	-0.22	-0.20	0.03
5	General quality of S.Ts. supervised	-0.15	-0.05	0.02	-0.29	0.22
6	General view of student teacher	-0.12	-0.07	-0.10	-0.11	-0.17
7	S.T's. relations with pupils	-0.06	-0.01	-0.01	-0.10	-0.14
8	S.T's. relations with co-operating teacher	-0.04	0.06	0.07	-0.09	-0.15
9	Relations with faculty consultant	0.53	0.23	0.36	0.27	-0.29
10	Subject matter knowledge	-0.01	-0.03	-0.01	-0.02	-0.05
11	Commitment to teaching	-0.11	0.03	0.03	-0.16	-0.10
12	Energy and drive	-0.16	0.00	0.00	-0.22	-0.07
13	Teaching skills	-0.20	-0.09	-0.10	-0.18	0.09
14	Originality, creative ability	-0.04	-0.02	-0.08	-0.18	-0.01
15	Rating of lesson by co-operating teacher	-0.16	-0.06	-0.02	-0.29	-0.07
16	Total "My Student Teacher" questionnaire	-0.00	0.00	0.04	-0.06	-0.11
17	Final grade, if C.T. were fac.consultant	-0.05	0.00	0.19	0.07	-0.10
18	Clarity of presentation	0.06	0.12	0.18	0.03	-0.16
19	Variety of use of techniques,materials	0.16	0.22	0.22	0.20	-0.00
20	Task orientation of teaching behaviors	-0.04	-0.11	-0.11	-0.28	-0.16
21	Degree of pupil activity	0.14	0.23	0.15	0.12	-0.07
22	Total of OSTL questionnaire	-0.03	0.12	0.11	0.01	-0.11
23	Co-operating teacher's rating of lesson	0.02	0.20	0.12	-0.00	-0.06
24	Affective merit dimension	-0.23	-0.10	-0.08	-0.34	-0.09
25	Cognitive merit dimension	-0.20	-0.29	-0.01	-0.12	0.22
26	General merit dimension	0.07	-0.21	0.21	0.09	0.11
27	Total MCT questionnaire	-0.20	-0.35	0.05	-0.20	0.12
28	S.T. conviction for metric changeover	0.35	0.63	0.36	0.39	-0.28
29	Agreement with manner of presentation	0.45	0.67	0.57	0.37	-0.17
30	Effect of lesson on C.T./ S.T. relationship	0.72	0.75	0.46	0.63	-0.27
31	Influence of lesson on term evaluation	0.54	0.58	0.40	0.39	0.15
32	C.T. reaction to metrics lesson	0.66	0.52	0.50	0.39	-0.34
33	Use of lesson to evaluate S.T.	0.50	0.55	0.24	0.23	-0.16
34	Interpretation objs./ pre-test relationship	0.60	0.84	0.56	0.50	-0.34
35	Adequacy of information in kit	0.49	0.61	0.67	0.25	-0.20
36	Influence of "Teaching Strategies"	0.47	0.45	0.65	0.20	0.13
37	Prior knowledge of metrics	0.34	0.51	0.24	0.36	0.38
38	Ease of teaching metrics	0.69	0.54	0.32	0.47	-0.01
39	Knowledge of metrics at time of lesson	0.65	0.72	0.23	0.58	-0.06
40	S.T's. rating of lesson	1.00	0.65	0.40	0.71	-0.12
41	Comparison of lesson preparation	0.65	1.00	0.40	0.55	-0.32
42	Requirement to provide lesson plans	0.40	0.40	1.00	0.20	0.14
43	Lesson as reflection of teaching ability	0.71	0.55	0.20	1.00	-0.17
44	Interpretation of objs. as hierarchical	0.45	0.45	0.38	0.41	0.05
45	Conviction to be a teacher	0.59	0.76	0.51	0.53	-0.16
46	Confidence as a teacher	0.62	0.63	0.36	0.55	-0.04
47	Number of Science courses	0.59	0.39	0.17	0.33	-0.14
48	Number of Mathematics courses	0.07	0.18	-0.13	0.21	-0.01
49	Number of Arts courses	0.17	0.45	0.44	0.20	-0.14
50	Rating of lesson plan	-0.12	-0.32	0.14	-0.17	1.00
51	Pupil achievement - raw gain	0.36	0.28	0.14	0.25	0.03
52	Pupil achievement - index of achievement	0.29	0.22	-0.04	0.32	-0.17

* Variables #40-43,50 on horizontal axis correspond to variables #40-43,50 on vertical axis.

TABLE E-15

INTERCORRELATIONS AMONG STUDENT TEACHER'S SELF PERCEPTION OF CONVICTION AND CONFIDENCE AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	STUDENT TEACHER VARIABLES * Consistent High Gain		Consistent Low Gain		Inconsistent Gain	
		#5	#6	#5	#6	#5	#6
1	Years as a teacher	-0.46	-0.12	0.06	-0.18	0.13	0.18
2	Number of student teachers supervised	-0.27	0.38	-0.21	-0.32	-0.09	-0.18
3	Number fac. consultants associated with	-0.19	0.33	-0.01	-0.22	0.11	0.07
4	Value of student teaching experience	0.16	0.19	0.59	0.86	-0.07	-0.32
5	General quality of S.Ts. supervised	0.07	-0.05	0.29	0.06	-0.14	-0.22
6	General view of student teacher	0.71	0.87	0.03	-0.05	-0.29	-0.29
7	S.T's. relations with pupils	0.52	0.91	-0.07	-0.16	-0.21	-0.21
8	S.T's. relations with co-operating teacher	0.44	0.76	-0.36	-0.44	-0.19	-0.24
9	Relations with faculty consultant	0.26	0.57	-0.28	-0.15	0.40	0.79
10	Subject matter knowledge	0.43	0.58	-0.12	-0.31	-0.26	-0.34
11	Commitment to teaching	0.78	0.81	0.16	-0.00	-0.18	-0.28
12	Energy and drive	0.62	0.81	0.04	-0.15	-0.19	-0.32
13	Teaching skills	0.70	0.92	0.05	-0.07	-0.29	-0.33
14	Originality, Creative ability	0.45	0.86	0.13	0.08	-0.28	-0.24
15	Rating of lesson by co-operating teacher	0.74	0.78	-0.14	-0.39	-0.21	-0.24
16	Total "My Student Teacher" questionnaire	0.65	0.90	-0.07	-0.18	-0.16	-0.24
17	Final grade, if C.T. were fac.consultant	0.36	0.62	0.08	0.13	-0.26	-0.21
18	Clarity of presentation	0.54	0.81	0.32	0.16	-0.34	-0.31
19	Variety of use of techniques,materials	0.38	-0.04	-0.03	-0.10	0.03	0.03
20	Task orientation of teaching behaviors	0.31	-0.02	0.22	0.21	-0.20	-0.23
21	Degree of pupil activity	0.29	0.03	0.16	-0.07	0.05	-0.09
22	Total of OITI questionnaire	0.52	0.27	0.29	0.05	-0.35	-0.31
23	Co-operating teacher's rating of lesson	0.25	-0.07	0.10	-0.05	-0.02	0.02
24	Affective merit dimension	0.47	0.87	0.24	0.59	-0.27	-0.24
25	Cognitive merit dimension	0.30	0.84	-0.20	0.20	-0.31	-0.19
26	General merit dimension	0.22	0.80	0.06	0.29	-0.13	-0.32
27	Total MCT questionnaire	0.33	0.79	-0.03	0.34	-0.33	-0.19
28	S.T. conviction for metric changeover	-0.01	-0.28	0.97	0.84	0.77	0.73
29	Agreement with manner of presentation	-0.08	-0.02	0.78	0.83	0.14	0.44
30	Effect of lesson on C.T./ S.T. relationship	-0.37	-0.25	0.98	0.78	0.82	0.73
31	Influence of lesson on term evaluation	-0.36	-0.02	0.67	0.62	0.54	0.59
32	C.T. reaction to metrics lesson	-0.37	-0.33	0.84	0.73	0.55	0.39
33	Use of lesson to evaluate S.T.	-0.12	0.21	0.58	0.35	0.61	0.94
34	Interpretation objs./ pre-test relationship	-0.29	0.03	0.93	0.74	0.95	0.91
35	Adequacy of information in kit	-0.37	-0.00	0.85	0.89	0.75	0.45
36	Influence of "Teaching Strategies"	0.18	0.16	0.81	0.68	0.61	0.51
37	Prior knowledge of metrics	-0.20	-0.03	0.80	0.67	0.49	0.41
38	Time of teaching metrics	0.16	0.02	0.75	0.85	0.56	0.33
39	Knowledge of metrics at time of lesson	-0.12	-0.13	0.79	0.81	0.69	0.61
40	S.T's. rating of lesson	-0.21	-0.09	0.82	0.91	0.59	0.42
41	Completion of lesson preparation	0.08	-0.13	0.88	0.88	0.76	0.69
42	Requirement to provide lesson plans	0.51	0.09	0.56	0.40	0.51	0.36
43	Lesson as reflection of teaching ability	0.09	0.02	0.89	0.91	0.53	0.55
44	Interpretation of objs. as hierarchical	0.12	0.01	0.69	0.56	0.62	0.61
45	Conviction to be a teacher	1.00	0.50	1.02	0.45	1.02	0.38
46	Confidence as a teacher	0.50	1.00	0.85	1.00	0.90	1.00
47	Number of science courses	0.00	-0.36	0.29	0.29	0.31	0.02
48	Number of Mathematics courses	0.07	-0.36	0.20	-0.11	0.19	-0.09
49	Number of Arts courses	-0.27	0.24	0.79	0.73	0.61	0.74
50	Rating of lesson plan	-0.18	-0.19	-0.01	0.13	-0.16	-0.21
51	Pupil achievement - raw gain	-0.03	0.41	-0.09	0.23	0.41	0.38
52	Pupil achievement - index of achievement	0.25	0.55	-0.32	0.61	0.21	0.45

* Variables #45-46 on the horizontal axis correspond to variables #45-46 on the vertical axis.

TABLE E-16

INTERCORRELATIONS AMONG STUDENT TEACHER'S ACADEMIC BACKGROUND AND OTHER ITEM RESPONSES

	QUESTIONNAIRE ITEMS	ACADEMIC BACKGROUND VARIABLES *								
		Consistent High Gain			Consistent Low Gain			Inconsistent Gain		
		#7	#8	#9	#7	#8	#9	#7	#8	#9
1	Years as a teacher	0.20	-0.01	0.01	-0.26	-0.29	0.25	-0.12	-0.09	0.14
2	Number of student teachers supervised	-0.25	-0.38	0.33	-0.51	-0.42	0.17	0.00	-0.09	-0.01
3	Number fac. consultants associated with	-0.03	-0.40	0.25	-0.44	-0.34	0.26	-0.05	0.04	0.12
4	Value of student teaching experience	0.08	-0.20	0.38	0.33	-0.39	0.00	-0.41	0.15	0.04
5	General quality of S.Te. supervised	-0.30	0.02	-0.05	0.36	0.39	-0.30	-0.02	-0.11	0.04
6	General view of student teacher	-0.18	-0.12	-0.05	-0.67	0.20	0.26	-0.26	-0.29	0.03
7	S.T's. relations with pupils	-0.45	-0.26	0.05	-0.78	0.18	0.18	-0.27	-0.19	0.10
8	S.T's. relations with co-operating teacher	-0.39	-0.31	-0.01	-0.64	0.33	-0.15	-0.14	-0.14	0.23
9	Relations with faculty consultant	-0.19	-0.55	0.27	-0.52	-0.19	0.10	0.05	0.01	0.23
10	Subject matter knowledge	-0.03	0.05	0.46	-0.68	0.31	0.03	-0.13	0.01	-0.14
11	Consistency in teaching	-0.26	-0.09	-0.01	-0.37	0.44	0.24	-0.13	-0.14	0.22
12	Energy and drive	-0.17	-0.13	-0.18	-0.44	0.44	0.13	-0.17	-0.14	0.20
13	Teaching skills	-0.24	-0.34	0.06	-0.51	0.31	0.18	-0.33	-0.13	-0.24
14	Originality, creative ability	-0.06	-0.21	0.00	-0.44	0.26	0.24	-0.19	-0.19	-0.19
15	Rating of lesson by co-operating teacher	-0.47	-0.02	0.10	-0.42	0.32	0.05	-0.24	-0.19	0.22
16	Total "My Student Teacher" questionnaire	-0.28	-0.27	0.00	-0.61	0.28	0.14	-0.19	-0.10	0.21
17	Final grade, if C.T. were fac.consultant	-0.10	-0.03	-0.15	-0.11	0.21	-0.07	-0.25	-0.03	0.02
18	Clarity of presentation	0.00	-0.03	0.07	0.20	0.27	0.37	-0.05	-0.07	0.12
19	Variety of use of techniques,materials	0.21	0.32	-0.41	-0.63	-0.86	0.21	-0.13	-0.12	0.19
20	Task orientation of teaching behaviors	0.18	0.42	-0.15	0.00	-0.43	0.22	-0.54	0.02	0.15
21	Degree of pupil activity	0.59	0.27	-0.59	0.18	0.02	-0.03	-0.11	0.09	0.14
22	Total of CSTI questionnaire	0.32	0.32	-0.37	-0.14	-0.05	0.38	-0.24	-0.01	0.16
23	Co-operating teacher's rating of lesson	0.47	0.49	-0.46	-0.30	0.10	0.17	-0.14	-0.08	0.21
24	Affective merit dimension	-0.57	-0.10	0.03	-0.61	-0.71	0.53	-0.15	-0.24	-0.28
25	Cognitive merit dimension	-0.58	-0.16	0.21	-0.52	-0.67	0.13	-0.09	-0.36	-0.18
26	General merit dimension	-0.68	-0.12	0.14	-0.66	-0.38	0.53	-0.23	-0.39	0.25
27	Total OCT questionnaire	-0.64	-0.13	0.15	-0.58	-0.65	0.36	-0.09	-0.43	-0.29
28	S.T. conviction for metric changeover	0.02	0.03	-0.42	0.23	0.13	0.84	0.21	0.21	0.53
29	Agreement with manner of presentation	0.10	0.04	-0.19	0.14	-0.17	0.43	0.44	0.02	0.33
30	Effect of lesson on C.T./ S.T. relationship	-0.08	-0.08	-0.25	0.30	0.23	0.77	0.39	0.13	0.53
31	Influence of lesson on term evaluation	-0.26	-0.51	0.04	-0.20	-0.06	0.94	0.38	0.13	0.23
32	C.T. reaction to metric lesson	-0.11	0.04	-0.38	-0.19	0.04	0.92	0.42	0.14	0.33
33	Use of lesson to evaluate S.T.	-0.34	-0.33	0.07	0.02	0.12	0.58	0.40	0.23	0.24
34	Interpretation objs./ pre-test relationship	0.35	-0.61	0.43	0.51	0.26	0.65	0.29	0.14	0.54
35	Adequacy of information in kit	0.55	-0.43	0.39	0.61	0.23	0.55	0.21	-0.24	0.76
36	Influence of "Teaching Strategies"	-0.28	0.32	0.23	-0.22	-0.99	0.84	0.18	-0.07	0.44
37	Prior knowledge of metrics	0.17	0.70	-0.23	0.45	0.41	0.49	0.23	0.42	0.13
38	Ease of teaching metrics	0.31	0.12	-0.68	0.38	-0.14	0.61	0.46	0.11	0.32
39	Knowledge of metrics at time of lesson	0.63	0.22	0.15	0.62	0.21	0.68	0.46	0.41	0.23
40	S.T's. rating of lesson	0.17	0.10	-0.41	0.43	-0.05	0.62	0.59	0.07	0.17
41	Comparison of lesson preparation	0.30	0.00	-0.00	0.59	0.23	0.63	0.39	0.19	0.45
42	Requirement to provide lesson plans	0.53	-0.31	0.06	0.26	0.78	0.38	0.17	-0.13	0.38
43	Lesson as reflection of teaching ability	0.28	-0.04	-0.55	0.41	-0.07	0.62	0.33	0.21	0.25
44	Interpretation of objs. as hierarchical	-0.06	-0.48	0.03	0.40	-0.17	0.60	0.41	-0.10	0.32
45	Conviction to be a teacher	0.00	0.07	-0.27	0.29	0.20	0.74	0.31	0.19	0.21
46	Confidence as a teacher	-0.76	-0.38	0.24	0.29	-0.11	0.73	0.05	-0.09	0.29
47	Number of Science courses	1.00	0.11	-0.25	1.00	0.39	-0.23	1.00	0.10	-0.32
48	Number of Mathematics courses	0.11	1.00	-0.53	0.39	1.00	-0.16	0.10	1.00	-0.36
49	Number of Arts courses	-0.25	-0.53	1.00	-0.20	-0.16	1.00	-0.32	-0.36	1.00
50	Rating of lesson plan	0.30	0.27	0.44	-0.07	-0.80	0.02	-0.14	-0.01	-0.14
51	Pupil achievement - raw gain	-0.45	-0.25	-0.09	-0.03	-0.15	0.15	0.02	0.17	0.27
52	Pupil achievement - index of achievement	-0.01	-0.36	0.05	0.05	0.31	-0.44	0.07	-0.04	0.21

* Variables #47-49 on the horizontal axis correspond to variables #47-49 on the vertical axis.

APPENDIX F:

PROFORMA FOR RATING LESSON PLAN

EVALUATION OF CURRICULUM PLANS

I. Internal consistency

1. Completeness

a) Are the following present in the plan?

	Yes	No
objectives		
resources		
strategies		
content		
evaluation		

b) Are these explicitly stated?

objectives		
resources		
strategies		
content		
evaluation		

2. Consistency

Do the activities suggested contribute to intended learnings?

APPENDIX G:

ITEMS FOR MY CO-OPERATING TEACHER

MERIT DIMENSIONS

ITEMS FOR MY CO-OPERATING TEACHER
MERIT DIMENSIONS

AFFECTIVE MERIT	COGNITIVE MERIT	GENERAL MERIT
1	3	4
2	6	5
8	7	10
-12	9	11
-13	15	-16
14	19	17
18	20	21
-22	24	25
23	28	26
30	29	27

Minus sign indicates that negative response to item by rater is favorable to person rated.